ECONOMY OF TRANSPORT IN MUGHAL INDIA

ABSTRACT

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ABSTRACT

In Mughal India land revenue (which was about 50% of total produce) was mainly realised in cash and this resulted in giving rise to induced trade in agricultural produce. The urban population of Mughal India was over 15% of the total population - much higher than the urban population in 1881(i.e.9.3%). The Mughal ruling class were largely town-based. At the same time foreign trade was on its rise. Certain towns were emerging as a centre of specialised manufactures. These centres needed raw materials from far and near places. For example, Ahmadabad in Gujarat a well known centre for manufacturing brocade, received silk from Bengal. Saltpeter was brought from Patna and indigo from Biana and adjoining regions and textiles from Agra, Lucknow, Banaras, Gazipur to the Gujarat ports for export. This meant development of long distance trade as well.

The brisk trade depended on the conditions and techniques of transport. A study of the economy of transport in Mughal India is therefore an important aspect of Mughal economy. Some work in the field has already been done on different aspects of system of transport in Mughal India. This thesis attempts a single study bringing all the various aspects of economy of transport together.

The most prevalent mode of transport was pack animals in Mughal India while carts were also used to a lesser extent. Pack oxen

were used for carrying the goods of bulk in most of the regions whereas, camels were employed in the North-Western part of the empire, and in other rocky and hilly regions; mules, asses, indigenous breeds of horses were the other beats of burden used for carrying trade. Chapter 2 deals in detail with means of land transport covering the breeding, prices etc. of the beast of burden and cost of transport, speed and turnover of trade on different routes and by different means.

Mughal India had considerable coastal area and many navigable rivers, therefore coastal and river navigation played important role in carrying both the goods of bulk as well as high-grade products. The Ganga River System and Indus Rivers System were the main navigable system which contributed much in transportation of merchandise by utilising various types of vessels. Whereas most of merchandise was carried mainly on Ganga River System from Bengal up to Agra, Indus River System proved main route for merchandise from Lahore to Thatta. Coastal navigation was also noticeable and merchandise were transported from Bay of Bengal in the East to Gujarat a major centre of manufacture and over-sea trade of the empire in the west. Though different types of boats were built locally at various places, major centres for ship and boat building were Surat and Swally in Gujarat, Badgara on Malabar Coast, Narsapur and Madapollam on Coromandel Coast and Balasore in the Bay of Bangal and on the land Lahore was also a shipbuilding centre. Details about these besides the characteristics of

Indian shipbuilding and cost and prices of indigenous as well as European vessels, freight charges have been discussed in Chapter 3.

Chapter 4 covers the description of the main land and river routes, also covering aspects such as types of land routes, their surface, various facilities provided on the routes such as *kos-minars*, avenues of trees on the sides, the halting places such as *sarais* (inns), bridges and various fording places on the rivers to continue the land routes etc.; and types of rivers such as perennial and seasonal rivers. Conditions prevailing on the land routes and highways and the difficulties faced by the merchants are also discussed in this chapter.

The conditions of security on the routes, whether inland or coastal or on seas and mechanism of security attempted by the Mughal administration and merchants themselves with special attention to system of insurance has been discussed in the Chapter 5. On the land routes, the smooth flow of transport was affected by exactions of various legal and illegal tolls and cesses -- generally called *rahdari*. The burden of these taxes and exactions differed from region to region depending upon the degree of imperial and administrative control. An often used arrangement for security on the routes was to undertake journey in a *caphila* (*qafila*) or caravan. The system of *hundi* (bills of exchange) and *bima* was an important private arrangement in Mughal India. This institution was so efficient that even the Imperial revenues were transmitted through it. The complains of insecurity by certain merchants

appears to be exaggeration in face of recorded experience of Manrique, Taverniers and others as well as the elaborate arrangements for security made by the Mughal administration. The routes passing entirely through the imperial land were safer in comparison to the routes passing through the region of the tributary chiefs and neighbouring kingdoms. In 1820, merchants had to insure their merchandise by paying more even for less distance than they paid in the Mughal period. As the rate of insurance is the best indicator of level of safety on the routes, one can perhaps assume that the level of safety on the routes during the Mughal period was better than that in the regime of the English East India Company.

As far as security in the coastal trade or on the high seas is concerned, the major problem was indeed piracy by the Portuguese, and other European trading companies, and private pirates, outsiders as well as Indian. The piracy was a continual menace on the ocean, but there were several methods, adopted by merchants and ship-owners to save themselves and their trade to a great extent. This lack of safety appears to have led to development of marine insurance and bottomry.

For this study a large number of sources Persian as well European have been utilised. Persian sources such as *Akbarnama* and its last volume known as *Ain-i Akbari* of Abu-l Fazl, the most important repositories of information on nearly all aspects, *Tuzuk* of Jahangir, *Padshahnama* of Abdul Hamid Lahori, *Tarikh-i Mazhar-i Shahjahani* (c.1634) of Yusuf Mirak, *Fathiya-i Ibriya* of Shihabuddin Talish,

Alamgirnama of Muhammad Kazim, *Mirat-i Ahmadi* of Ali Muhammad Khan, etc. proved very important. Various primary documents like Blochet, supp. Pers. 482, *Waqa-i Ajmer*, &c., A.D. 1678-80, a report sent by a *waqia navis* of Ajmer and epistolary collections such as collections made by Balkrishn Brahman, *Durrul Ulum*, a collection of papers belonging to Munshi Gopal Rai Surdaj, *Ruqat-i Alamgiri*, a collection of letters and orders of Aurangzeb (Add. 18881) and Persian geographical accounts, such as *Haft Iqlim* (Or. 204) of Amin Ahmad Razi and *Chahar Gulshan* of Rai Chaturman Saksena etc. yielded value data on most of the aspects.

A large number of European sources in the form of travelogues such as that of Ralph Fitch, Finch, Withington, Coryat, Terry, Della Valle, Mundy, Manrique, Tavernier, Bernier, Fryer, Hamilton, etc., diaries of Pieter van den Broeke, Strenysham Master, etc. and reports of the various factors of the European trading Companies such as the *Factory Records* of the English East India Company, the Dutch Company and those of Denmark, France supplemented the information.

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This is to certify that the thesis '*Economy of Transport in Mughal India*' by **Mr. Nazer Aziz Anjum** is the original research work of the candidate, and is suitable for submission to the examiners and for the award of the Ph.D. degree.

(Shireen Moosvi)
Supervisor

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ABBREVIATIONS

A'in	Abu'l Fazl, *A'in-i-Akbari*, ed. Nawal Kishor, 3 vols., Lucknow, 1882
AN	Abul Fazl, *Akbarnama,* ed. Agha Ahmad Ali and Abdu-r Rahim, Bib. Ind., 3 vols. Calcutta, 1873-87
Atlas	Irfan Habib, *Atlas of the Mughal Empire*, Delhi, 1982
CG	Rai Chaturman Saksena, *Chahar Gulshan* or *Akhbar-i Nawadir*
D.G.U.P.O	N. R. Nevill *et al.*, *District Gazetteer of the United Provinces of Agra and Oudh*, Allahabad, 1900-30
DEP	George Watt, (assisted by numerous contributors), *Dictionary of Economic Products of India*, 6 vols. (Vol. VI being issued in 4 parts), Calcutta, 1889-93
DFI	*Dutch Factories in India*
EFI	*English Factories in India, 1618-69*
EJT	*C. Wessels, The Early Jesuit Travellers in Central Asia, 1603-1721, the Hague, 1924*
EME	Shireen Moosvi, *Economy of the Mughal Empire –A Statistical Study, c.1595*, New Delhi, 1987
IESHR	*Indian Economic and Social History Review,* Delhi
JESHO	*Journal of the Economic and Social History of the Orient, the Netherlands*
JIH	*Journal of Indian History*, Allahabad, Madras, Trivandrum

Letters Recd.	*Letters Received by the East India Company from its Servants in the East*
PIHC	*Proceedings of the Indian History Congress*

CHAPTER 1

INTRODUCTION

In Mughal India like any other medieval state land tax was the basis of the economy. However, there were certain peculiarities: In the Mughal Indian system the land tax was realised from the agrarian sector in cash, so much so that even the demand came to be stated in cash and the magnitude of the land revenue was as high as 50% and above of the total produce.[1]This realization of revenue in cash compelled the peasants to sell the surplus produce directly or through the agent of the *jagirdars* in the local market or the town market or to the *banyas* or *mahajans* (money lenders)[2] and in case of high-grade crops like indigo to the merchants who tried to make direct purchases in the village such as merchants from Dutch and English companies and Armenians.[3] This realisation of land tax in cash gave rise to what may be termed 'induced' trade in agricultural produce in spite of the fact that the village remained more or less self sufficient. Thus a one way trade between villages and town developed. On the other hand the Mughal nobility remained almost entirely town based and did not live off

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1 Irfan Habib, *Agrarian System of Mughal India, 1556-1707*, revised ed,Delhi,1999, pp. 230-36, 276-281. For more than 50% share of Agriculture in the GDP of Mughal India see Shireen Moosvi, 'The Indian Economic Experience, 1600-1900: A Quantitative Study' in *People, Taxation, and Trade*, New Delhi, 2008, pp. 2-4.

2 Irfan Habib, *Agrarian System*, pp. 85-86.

3 Francisco Pelsaert, Remonstrantie, transl. W. H. Moreland and P. Geyl, Jahangir's India, Cambridge, 1925, New Delhi, 1972, pp. 15-16.

the land.[4] The immense revenue realize in cash from the rural sector facilitated this phenomenon. This led to the growth of towns and emergence of many townships. In the closing decade of the sixteenth century, Nizamuddin Ahmad reported that Akbar's empire contained '120 big cities and 3200 townships (*qasbas*), each have around it 100 to 1000 villages.'[5]The proportion of urban population was, therefore, quite high, according to a guesstimate around 15 %[6] and an estimate based on revenue statistics over 17 %.[7] To meet the food requirements of this nearly one-fifth of the population a voluminous and brisk village-town trade had to be there. Nizamuddin's statement implies that even to satisfy the demand of a small township surplus in the form of grains and raw materials from 100 villages was required while for big towns the number of villages may be as large as 1000.

Persian chroniclers as well as European travellers and English East India Companys' Factors have provided us with their estimates of size of certain towns. The largest Indian city in the seventeenth century was Agra with a population estimated at 500,000 and 660,000 in the days when it

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4 Irfan Habib designates such a system of extraction as 'Form A', 'Potentialities of Capitalistic Development in the Economy of Mughal India', *Essays in India History: Towards Marxist Perception*, New Delhi, 1995, pp. 184-85.

5 Nizamuddin Ahmad, *Tabaqat-i Akbari*, vol. III, ed. B. De, pp. 545-6.

6 Irfan Habib, ' Potentialities', pp.222-26; Shireen Moosvi, Urban Population in Pre-Colonial India, *People, Taxation, and Trade, in Mughal India*, p. 127.

7 Shireen Moosvi, 'Urban Population', p. 127.

contained the court.[8]In 1580s Lahore had a population of around 250,000.[9] Delhi by 1660s was as populous as Paris which had been estimated well over 350,000.[10] Dhaka and Patna had estimated population of 200,000 each in 1630-1631.[11] Ahmadabad in 1600 contained about 250,000 inhabitants.[12] The population of Surat was estimated at 100,000 in 1663 and by1700 it increased to 200,000. [13] Besides these big towns the 3200 townships must have accounted for a considerable consumer population. The average population of a *qasba* has been worked out at nearly 4500.[14] Most of these towns were centres of production in certain cases known for some specialised crafts. While some were centre of trade or enterport as well. These thus required raw material from far off places. For example,

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8 The former estimate has been given by Fr. J. Xavier, (Letters, 1593-1617, transl H. Hosten, JASB, NS, XXIII (1927), p.121); while the later estimate was given by Manrique, *Travels, 1629-43*, transl. C. E. Luard assisted by H. Hosten, London, 1927, II, p. 152.

9 Monserrate, Fr. A. Monserrate, *Commentary on his Journey to the Court of Akbar*, transl. J. S. Hoyland, annotated by S. N. Banerjee, Cuttack, 1922.

10 Francois Bernier, *Travels in Mogul Empire, 1640-68*, pp. 281-82.

11 Manrique, II, pp. 44-45; II, p. 140.

12 *Letters Received by the East India Company from its Servants in the East*, vol. II, p. 28; Withington in *Early Travels*, p. 206.

13 Fr. Manual Godinho, 'Relacao de Novo Cominho', etc. transl. Vitalio Lobo and John Correa-Afonso, Intrepid Itinerant: Manual Godinho and his Journey from India to Portugal in 1663, Bombay, 1990, p. 47; 41; Alexander Hamilton, *A New Account of East Indies ....from the year 1688 to 1723*, 2nd ed., 2 vols. London, 1739; ed. W. Foster, London, 1930, I, p.147. Cf. Ashin Das Gupta, *Indian Merchants and Decline of Surat: 1700-1750,* 1st published in Wiesbaden, Germany, 1979, reprint New Delhi, 1994, 29-30.

14 Shireen Moosvi, 'Urban Population', *People, Taxation, and Trade, in Mughal India* , p. 129.

Ahmadabad, a centre of manufacture of brocade received silk from Bengal. These manufacturing towns' produce was in demand by the imperial establishment, nobility and the rich in other towns as well as by merchants, Indian as well as foreign for export. Again due to entry of European Companies in Mughal India, foreign trade was on its rise. These Companies and other merchants involved in foreign trade collected merchandise from almost all over the empire and brought them to the important ports of the empire for export or send them overland. Such as, saltpetre was brought from Patna and indigo from Bayana to the Gujarat ports for export. Indigo from Bayana was also sent overland through Lahore, Kabul and Qandahar to the Middle East.

Moreover Gujarat the most commercialised region of the empire was the big importer of food stuff. It not only obtained wheat and other food crops from Malwa and Ajmer but also received wheat, sugar from far away places via Agra that an entreport specially between the eastern and the western region of the empire. Thus there was a substantial trade in luxury goods between towns and port along with trade of bulk in food crops short distance as well as long distance.

This brisk trade that was the mainstay of the mughal economy required adequate means of transport and for long distance trade the network routes as well. A study of the system and structure of transport indeed appears to be of importance for delineating the economy of the Mughal Empire.

For discussing the different aspects of economy of transport in Mughal India, brief discussion on the geographical and physical conditions is required since due to differences in the geographical terrains. different means of transport to suit the terrain of specific regions were used. (See Plate– I, for different means of transport in Mughal India). Mughal India being a vast region encompassing almost the present three countries namely Bangladesh, India and Pakistan and Afghanistan uptill the Durand Line was comprised of different geographical terrains. Northern region was mainly consisting of alluvial plains with grasslands, north-western parts was hilly as well as contained desert and dry region and the southern part was hilly and partly fertile plateau. All the rivers in these parts however, were not navigable for commercial purposes, while certain areas had access to coasts.

Therefore, there is a need to explore what were the conditions which contributed to the use of different means of transport in different geographical terrain? How and where they were procured? What was structure of the means of transport? What was the cost of transport? What was the pace of means of transport? Who were associated with them? What was the role of Mughal administration?

Another important aspect to be studied is the conditions of security on the routes, whether inland or coastal or on seas and mechanism of security attempted by the Mughal administration and merchants themselves with special attention to system of insurance, cost of transport and turnover of trade.

A study of economy of transport in Mughal India becomes possible because of the availability of the evidence in contemporary sources on its different aspects such as means of transport which appear to be mainly pack animals and partly carts, locations of and condition on land, river, coastal and sea routes and data on insurance rates and exaction of taxes legal as well as illegal. Besides the Persian historical works and documents, the accounts given by the European travellers and merchants and the records of the two major European companies, the English and the Dutch are rich in information relating to transport economy. Some other indigenous sources also offer useful information.

Akbarnama and *its last volume known as Ain-i Akbari* of Abu-l Fazl, are among the most important repositories of information on nearly all aspects. *Akbarnama* records various regulations and *farmans* issued by Akbar for the protection of the routes, land as well coastal and oceanic, such as a *farmans* prohibiting either entirely or with some exception, transit dues variously known as *baj*, *tamgha, zakat*, and *mir bahri* and other various tolls and taxes, generally called *rahdari*. It also provides information regarding various routes, breeding places of different beasts of burden, construction of boats and ships, etc. *Ain-i Akbari*, 'The first gazetteer of India' provides ample materials in an organised manner on the various means of transport employed in different parts in accordance with the geographical terrain, such as oxen, camels, mules, asses, country bred horses, variously known as Gunt, Tanghan etc. goats, yaks, boats and ships,

and human porters also. It also gives information regarding prices of beast of burden their fodder, harnessing, breeding places, etc. Important information on the various routes joining the empire and the foreign lands is also contained in this work. Regarding measures for security on the routes it highlights the interest of the Mughal emperor and responsibility of the Mughal officers.

Tuzuk of Jahangir appears to have valuable detailed information regarding the routes on which Jahangir took for his campaigns and pleasure trips especially routes leading from Agra to Gujarat, from Agra to Kashmir and to Kabul. He not only gives information about the routes, but also informed us about each station, river, bridges and hardships on the routes. Jahangir also gives us information about the various means of transport especially in Gujarat and Kashmir. He also records his orders about the abolition of various tolls and transit dues, exacted by the various *zamindars* and *hakims* in their respective area. Jahangir offers most reliable information on the *banjaras*, the main carriers of trade mainly in the commodities of bulk.

Valuable information regarding the various routes, especially of North-West frontier, and beyond to Central Asia comes from the *Padshahnama* of Abdul Hamid Lahori, that covers the major period of reign of Shah Jahan (1628-58). From its detailed account of expedition of Balkh and Badakhshan, one can cull the information regarding routes, rivers, means of transport etc. At the same time it provides ample information on

the conditions of road and transport in Kashmir and other parts of India. It also helpfully mention the presence of *sarais* on the routes wherever they existed.

Tarikh-i Mazhar-i Shahjahani (c.1634) of Yusuf Mirak, which is basically an administrative history of Sindh under the Mughals, down to 1634, with separate accounts of Bhakkar, Thatta and Sehwan, gives details of cattle rearing in that region and also the tribes and clans involved in cattle rearing particularly that bred the camels of good quality.

Fathiya-i Ibriya of Shihabuddin Talish is an important source for the history of Assam during Aurangzeb's period. Besides other information, it gives very important information regarding various boats used in Assam and adjoining areas. It also provides information regarding the various route and types of boat of that region.

Alamgirnama of Muhammad Kazim, is an important source for the early period of Aurangzeb's reign. Besides giving information regarding *farmans* prohibiting illegal dues and taxes on the routes, it provides information about the condition of routes, means of transport used, etc. in the *suba* of Bengal and Assam. It specially mentions the roads and the form of embankment. It also provides information about condition of rivers and ports in those *subas*. And it also records the measures adopted to check the misuse of authority by the officials especially in exacting illegal tolls and transit dues.

However, *Mirat-i Ahmadi* of Ali Muhammad Khan is a work of mid eighteenth century, it is a very important work, whenever corroboration is needed. It contains basically administrative information, such as *farmans* issued by the Mughal emperors, time and again for the prohibition of the illegal taxes and dues exacted on the routes. It also provides us information regarding the geographical condition and cattle and horse breeding of *suba* of Gujarat. One of the important information it provides in detail is the information about the intelligence system of the empire, with special reference to Gujarat, very useful for checking the misuse of the authority by the officials.

Various primary documents preserved in various archives, published and unpublished, such as Blochet, suppl. Pers. 482, a volume of documents, mostly relating to Surat and neighbouring localities in Gujarat, ranging from 1583-1648 and probably transcribed in 1650, are of much help to know administrative measure taken by the Mughal Emperors, to ensure security and abolishing tolls and illegal taxes on the routes, as well as study of shipbuilding. Similarly *Selected Documents of Shah Jahan's Reign*, edited by Yusuf Husain Khan, in 1950 in Hyderabad-Deccan and preserved in the State Archives (Andhra Pradesh), is collection of documents from 1634 onwards; *Selected Documents of Aurangzeb's Reign, 1659-1706*, edited by Yusuf Husain Khan, in Hyderabad in 1959 and *Waqa-i Ajmer, &c., A.D. 1678-80*, a report sent by a *waqia navis* of Ajmer, is useful for assessing the security on routes and measures adopted by the state.

Epistolary collections i.e. collections of copies of personal and official letters, is another kind of source materials, such as collection of Balkrishn Brahman, letters and other writing of Shaikh Jalal Hisari compiled in the late years of Shahjahan and early years of Aurangzeb, provide and important source information on breeding of cattle in Hisar and their average prices, besides other information. *Durrul Ulum*, a collection of papers belonging to Munshi Gopal Rai Surdaj, and arranged by Sahib Rai Surdaj, in 1688-89 (Bodl. Waiker 104) emphasises the responsibility of the officials in maintaining security on the routes. Similarly *Ruqat-i Alamgiri*, a collection of letters and orders of Aurangzeb (Add. 18881), provides us information about the condition of security on the routes, besides other information.

Geographical accounts, such as *Haft Iqlim* (Or. 204) of Amin Ahmad Razi and *Chahar Gulshan* or *Akhbar-i Nawadir* (MS Bodl. Eliot 366) of Rai Chaturman Saksena, are useful in finding various stages and distances between places on the various routes in the Mughal Empire.

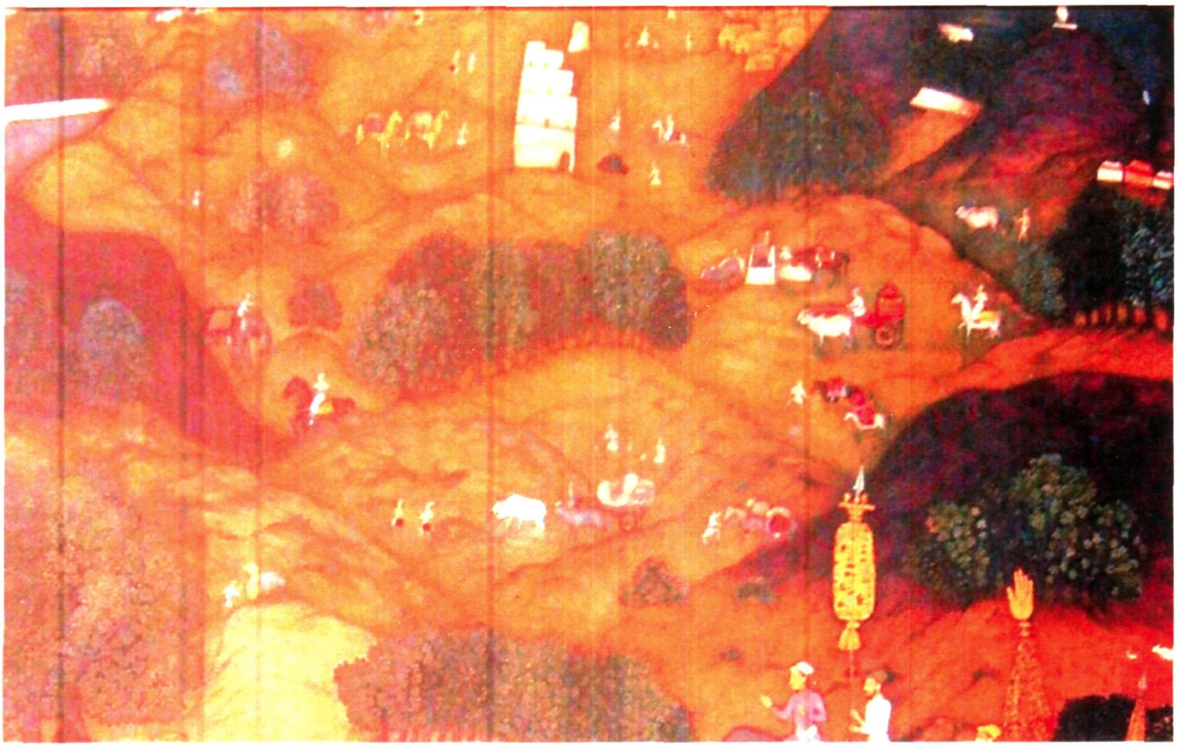
European sources belonged to another genre which supplements as well as complements the information on economy of transport. For the period under study a large number of sources in the form of travelogues, diaries, reports of the various factors of the various companies etc. are the factory records of the English East India Company as well as the Dutch Company besides those of Denmark, France etc. Similarly Portuguese

records are also important. These sources not only provide economic evidence, but also information regarding various administrative measures.

The pioneering works in the field of study have been done by W.H. Moreland in his two work *India at the death of Akbar*, published in 1920 and *From Akbar to Aurangzeb*, published in 1923, this work is largely based on European evidence. Irfan Habib in *The Agrarian System of Mughal India*, published in 1963, provided a sketch of various means of transport and condition of security on the routes and also of the role of the state in maintaining law and order on the route and in *Atlas of the Mughal Empire*, published in 1982, he presented information in the detailed notes, regarding the various routes, rivers, bridges, breeding places of beast of burden, ports, and centres of boatbuilding and shipbuilding etc. in his 'Technology in Medieval India' he offers valuable information on constructions of ships. Tapan Raychaudhuri in *The Cambridge Economic History of India*, vol. I, published in 1982, presented a short but very useful account of trade and its related aspects in Mughal India, using again mostly European sources. Shireen Moosvi, mainly using the Persian sources discussed the level of monetisation and urbanisation, as well turn over of trade, shipping, shipbuilding and other related aspects. Ashin Das Gupta, Om Prakash K. N. Chadhuri and Jean Deloche and other etc. also have made useful contribution in this field.

But a detailed work exclusively devoted to Economy of Transport perhaps required to be undertaken.

PLATE - I



A Mughal paintaing from *Padshahnama*, section showing various means of land transport (c. 1656) (Royal Library, Windsor Castle) (*Courtesy* : Dr. Syed Ali Nadeem Rezavi, CAS, Dept. of History, Aligarh.)

CHAPTER 2

MEANS OF LAND TRANSPORT

1: OXEN

The humped Indian ox (*zebu* to zoologist),[1] provided the major means of transport in Mughal India.[2] The hump on the fore part of their back - a physical feature peculiar to Indian oxen as noted by several European travellers[3] enabled them to be harnessed.[4] This made them not only efficient drought animals to draw ploughs as well as carts but also to be used as pack animals to carry commodities mainly of bulk and even to

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[1] George Watt, *Dictionary of Economic Products of India*, Vol. IV, Calcutta, 1889-93, p.659.

[2] "Differing from the custom in Persia, you do not employ in India in caravans or journeys either asses, mules, or horses, everything being carried here on oxen or by wagon" (Tavernier, *Travels in India, 1640-67*, vol. I, transl. V. Ball, 2nd edition revised by W. Crooke, London, 1925, Delhi, 1977, p. 32).

[3] "The beeves [oxen] of that countrey differ from ours, in that they have each of them a great bunch of grisselly flesh which growes upon the meeting of their shoulders" (Terry, in *Early Travels in India,* ed. William Foster, London, 1921, p. 297.). See also Thevenot, *The Indian Travels of Thevenot and Careri*, reprinted with corrections, notes and an introduction by S. N. Sen, New Delhi, 1949, p.73; J. Ovington, *A Voyage to Surat in the Year 1689*, ed. H. G. Rawlinson, London, 1929, p.151; John Fryer, *A New Account of East India and Persia being Nine years' Travels, 1672-81*,vol. I, ed. W. Crooke, London, 1909, New Delhi,1992, p.296. However, Della Valle has mentioned about two bunches like those of some camels, which is an inaccurate description (*Travels of Pietro della Valle in India,* vol. I, transl. Edward Grey, London, 1892, p. 21).

[4] "Whereas in Europe we attach our oxen by the horns, those of India have a large hump on the neck, which keeps in position a leather collar about four fingers wide, which they have only to throw over the head when they harness them" (Tavernier, I, p.36).

ride. The use of oxen as pack animals whether by the traders or the imperial establishment is testified by the Mughal miniatures also (see Plate -II for use in trade where pack oxen are being loaded and Plate-III and IV for use in the imperial establishment for carrying building materials).

There is no doubt that in short distance trade in agricultural produce from surrounding villages to towns and townships, the peasants who generally themselves carried this trade employed pack oxen or carts drawn by oxen. We have the news report forth coming that "The peasants of the *pargana* Petlad &c. come to Ahmadabad to sell cart loads of food grains and had to pay Rs.2 per cart as *rahdari*."[5] The fact that peasants brought goods on either oxen drawn carts or on pack oxen is also evident from a *farman* issued by Aurangzeb in his 8th regnal year that forbade the following exactions: "a fee of one *tanka* for feeding oxen, whether drawing carts or carrying load, when brought from outside into city, on carts bringing grass and straw one copper coin, on those bringing firewood, five ser of the same and on each ox-load four almonds. These were exacted at various places en route to the towns."[6] However to estimate the number of oxen employed in village to town trade seems difficult, but since this trade was much more voluminous than the long distance trade, since all over the empire towns and townships depended for feeding their population as well as for raw materials for their crafts on this village-town trade. It is of course

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5 *Akhbarat* of Prince A'zam's headquarters in Gujarat, A 77

6 *Mirat-i-Ahmadi*, vol. I, ed. Nawab Ali, Baroda, 1928, pp. 259-64.

certain that the number of oxen employed in local trade must have been larger than in the long distance trade.

As for the long distance trade is concerned, it is well established that the main carrier of the trade of the bulk were the celebrated Banjaras, who used pack oxen.[7] They are best described by Peter Mundy "Theis Banjaras carrie all their howsehold along with them, as wives and children, one Tanda consisting of many families. Their course of life is somewhat like Carriers, continually driveing from place to place...There may bee in such a Tanda 6 or 700 persons, men, women and children. There men are very lustie, there women hardie, whoe in occasion of fight, lay about them like men. Theis people go dispersedly [i.e. well spread out], driving their laden Oxen before them, their Journey not above 6 or 7 miles a day att most, and that in the Coole."[8]The Mughal emperor Jahangir also observed that "in this country the Banjaras are a fixed class of people, who possess a thousand oxen, or more or less, varying in numbers. They bring grain from the villages to the towns and also accompany armies. With an army [like one then being prepared for Qandahar], there may be a hundred thousand oxen or more."[9] Sir Thomas Roe, met on the route from Surat to Burhanpur "as

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7 Irfan Habib, 'Merchant Communities in Precolonial India', Pub. in *Rise of the Merchant Empires: Long–distance Trade in the Early Modern World, 1350-1750*, ed. James D. Tracy, Cambridge, 1994, pp. 371-399, especially pp. 371-379.

8 Peter Mundy, *Travels* , Vol. II, *Travels in Asia*, ed. R. C. Temple, Halkluyt Society, 2nd Series, XXXV, London, 1914, pp. 95-96.

9 Jahangir, *Tuzuk-i- Jahangiri,* ed. Syed Ahmad Khan, Aligarh, 1864,p. 345; Irfan Habib, 'Merchant Communities', p.374.

many as 10,000 bullocks in one troupe laden with corne, and most of the days, others, but less."[10] Peter Mundy (1630-32), during his journey from Surat to Agra and again from Agra to Patna, noticed large numbers of oxen used by Banjaras in carrying trade. On 22nd December 1630, near Sironj, during his visit from Surat to Agra, while sitting on top of a little hill, he saw many thousand of oxen laden with provisions, stretching at least 1½ miles in length.[11] During his journey from Agra to Patna in 1632, once he met "a *tanda* of *banjara* of oxen in number 14,000 all laden with graine as wheat, rice, etts." Two days later he encountered another "Tanda of oxen, number 20,000 (as themselves said) laden with Sugar."[12] In 1630, during Mughal attack in the Deccan, two groups of Banjaras accompanied Asaf Khan, *Wazir* of Shahjahan, with 180,000 and 52,000 bullocks.[13] Tavernier wrote about the caravans and astonishing sight of 10,000 or 12,000 oxen together for the transport of rice, corn or salt.[14] In his later period Aurangzeb, found Banjaras with "a hundred thousand oxen" trying to buy grains in Gujarat, who had come from the Deccan with large numbers of other Banjaras who dispersed in other part carrying salt as they failed to find food grains for the Deccan.[15]

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10 Thomas Roe, *The Embassy of Sir Thomas Roe, 1615-19, as Narrated in his Journal and Correspondence.*, ed. W. Foster, London, 1926, p. 67.

11 Mundy, II, p. 56.

12 Ibid. II, pp 95-98.

13 W. Crooke, *Tribes and Castes of the North-western Provinces and Oudh*, Calcatta, 1896, p. 151.

14 Tavernier, I, pp. 32-33.

15 *Ahkam-i-Alamgiri,* India Office MS., I.O. 3887, fol. 83a.

Irfan Habib on the basis of information given by Tavernier has estimated the total population of Banjaras as 400,000. Further utilising this estimation and other information that each Banjara family had one thousand oxen to load, he got a total ox population of about 9 million (assuming the conventional ratio of 4.5 persons to a family).[16]

For the load carried by an ox there are varying estimates. Mundy puts the load at 2½ cwt. at one place and 4 *man-i-Jahangiri* or 265 lb (120 kg) at another place.[17] Tavernier on the other hand thought it to be as much as 300 or 350 livers i.e. 327 to 390 lb.[18] (148.327 or 176.90kg). According to English Factory Records a bullock seems to have normally carried 4 *man-i Shahjahani* and 8 *sers*[19](140.28kg). So far as total amount of commodities on an average conveyed annually on the oxen of Banjaras is concerned, Irfan Habib assuming that an ox carried a load only a third of year, at six miles a day, has calculated as 1.14 million metric tons each year over an average of 720 miles, or a total of 821 million metric ton-miles a year.[20] As pointed out by Habib, this appears quite substantial if we remind

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16 Irfan Habib, 'Merchant Communities', pp. 376-77.

17 Mundy, II, pp 95, 98. (One *man-i-Jahangiri* was equal to 30.14 kg. See Irfan Habib, *Agrarian System of Mughal India: 1556-1707,* 1st pub.1963, second revised edition New Delhi, 1999, p. 421).

18 Tavernier, I, pp. 32-33.

19 *English Factories in India, 1618-69*, ed. William Foster, 13 Vols., Oxford, 1906-27, *1651-54*, p. 63. 40 *sers* = 1 *man*, and a *man-i Shahjahani* was equal to 33.48 kg. (Irfan Habib, *Agrarian System*, pp. 420, 421-22).

20 Irfan Habib, Merchant Communities, p. 377.

ourselves that in 1882 Indian Railways carried about 2,500 million metric ton-miles.[21]

While the volume of trade carried by oxen of the Banjaras was considerable in terms of volume it was not as high in value since the commodities on oxen carried by Banjaras were mostly goods of greater bulk but of low value such as food grain: rice, pulses, millet, wheat, sugar, butter, salt etc.

Oxen provided a means of transport no doubt cheap but slow. Mundy noted that, their pace was 'Not above 6 or 7 miles a day att most'.[22] The slow pace was perhaps due to the reason that, the oxen grazed along the routes, which was also the reason behind the low cost. Though, it restricted operations during the summer and in the drier tract.[23]

European Companies in India were another important user of the hired oxen as pack animal as well as cart drawer. Oxen provided to them also the main means of land transport. They used to carry to and fro commodities of bulk to their *karkhanas* (workshops) and ports to and fro from places far and near. Among the European Companies, English were the major user of oxen. English Factory Records are full of evidences for the use of oxen by

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21 Ibid.

22 Mundy, II, p. 96.

23 Ibid., II, p. 96; [Among the exactions declared illegal by Aurangzeb are listed the fees levied on the Banjaras for grazing their animals (*Mirat*, I, p. 287; Frazer 86, *Dasturu-l 'Amal*, Aurangzeb: post 1669, f. 93a; Muhammad Hashim Khafi Khan, *Muntakhabu-l Lubab*,vol. I, ed. Kabir al Din, Bib.Ind. Calcutta,1869, p. 87.), quoted from Irfan Habib, *Agrarian System*, p. 69]

the English and others especially the Dutch.[24] The dependence of European Companies on oxen was so great that their loading of ships often got affected by the procurements of oxen.[25] In spite of the fact that from Agra to Ahmadabad and Surat, camels were also employed along with oxen, but sugar and sugar candy were especially carried on oxen and not on camels.[26] Thomas Roe advised the Factors at Agra to bring commodities on the carts rather than on camels.[27] In Gujarat local transportation of commodities as well as water for ships was mainly done through pack oxen or ox-drawn carts.[28] From Agra to Patna, the English Factors depended mainly on oxen for providing carriage on that route.[29] Finch testified to use of oxen by the English East India Company on the route of Agra and Lahore.[30]

The other European Company, the Dutch also used to hire oxen for transport of their commodities. In 1627, the Dutch Factors at Agra were so much worried about the rising rate of cartage due to use of carts for import of spices on large scale from Masulipatam to Agra, via Burhanpur by the

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24 *Letters Received by the East India Company from its Servants in the East*, vol. IV, edited by William Foster, London, 1900, p. 252; vol. VI, London, 1902, pp.237-38; *EFI, 1618-21*, pp. 102, 191, 199, 240, 256, 283-84, ff; *1622-23*, pp. 63, 90,96, 110, 124, 125, 230-31, 262, 266, 287,324, ff; *1630-33*, pp.61, 70, 71, 74-75, 145-6, ff; 1646-50, p. 248; *1651-54*, p. 63.

25 *EFI, 1622-23*, p. 124; *1630-33*, pp. 87, 176; *1646-50*, p. 253.

26 Ibid., *1618-21*, p. 102.

27 *Letters recd.* Vol. IV, p. 252.

28 *EFI, 1618-21*, p. 240; *1622-23*, pp. 63, 65, 92, 96, 110, 124, 230, 262, 266, 271, 287. 322; *1630-33*, pp. 23, 61, 63, 67, 70, 74, ff.

29 Ibid., *1618-21*, pp.191, 199, 256, 283-84, ff.

30 Finch (c.1611) in *Early Travels*, p.155.

merchants of the Deccan, that they especially wrote about the cartage and reason behind its rise to Batavia.[31]

In Mughal India ox was also used for riding. Various travellers mentioned it time and again. John Juordain (1608-17), during his journey from Gandavi to Surat, mentions that his companions rode upon oxen.[32] Mendelslo, who visited India in 1638-39, noted his personal experience with the ox in these words that "For first I had a mule, then a camel, then an elephant, and then at last an oxe, whose trotting was the hardest of any beast that ever I bestrid, lifting up his hoofs as high as the stirrup and carrying me between six or seven league in less than four hours".[33]Tavernier (1640-67), recorded the manner of ridding up on ox in detail. He noted that "...I come to the manner of travelling in India, where oxen take the place of horses ... These oxen allow themselves to be driven like our horses, and have for sole bridle a cord, which passes through the tendon of the muzzle or the nostrils".[34] Thevenot also noted the same process of riding up on ox and he further stated that "they saddle him as they do a Horse, and if be put a little spurred, he'll go very fast, and some that go very fast as a good Horse".[35] Tavernier at the same time noted that what care had to be taken in selection of oxen to ride upon? He cautioned that "when you buy or hire an ox for

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31 *Dutch Factories in India, 1624-27*, Vol. 2, transl. & ed. Om Prakash, New Delhi, 2007, pp.342-43.

32 John Jourdain, *Journal, 1608-17*, ed. W. Foster, Cambridge, 1905, pp. 127-128.

33 Mendelslo, p. 65, cited from Manrique, II, p.278.

34 Tavernier, I, p.36.

35 Thevenot, p.73.

riding that he has not horns longer than a foot, because, if they are longer, when the flies sting him, he chafes and tosses back the head, and may plant a horn in your stomach, as has happened several times".[36]

So far as pace of the oxen used for riding is concerned, Abul Fazl noted that they could travel 80 *kos* (120 miles) in 24 hours, and surpassed even swift horses.[37] Mendelslo noted that an ox carried him between six or seven league in less than four hours.[38] Tavernier noted that paces of some of the oxen were as easy as those of their hacks.[39] In late seventeenth century Sujan Rai, found that a Gujarat ox could travel 50 *kos* in a day.[40]

The oxen were shoed especially in the stony zone both on account of the pebbles and because of the heat, which might injure the hoof.[41] Thevenot has given description of shoeing the oxen in this manner: 'They cast them with a rope fastened to two of their legs and so soon as they are down, they tie their four feet together, which they put upon an engine made of two sticks in form of an X; and then they take two little thin and light pieces of iron, which they apply to each foot, one piece covering but one half foot, and that they fasten with three nails above an inch long, which are clenched upon the side of the hooves, as horses with us are shod'.[42]

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36 Tavernier, I, p.36.

37 Abu'l Fazl, *A'in-i-Akbari*, vol. I, ed. Nawal Kishor, Lucknow, 1882, p. 102.

38 Mendelslo, p. 65. Cf. Manrique, *Travels, 1629-43*, vol. II, transl. C.E. Luard assisted by H. Hosten, Hakluyt Society, London, 1927. p.278.

39 Tavernier, I, pp. 35-36.

40 *Khulasatu-t Tawarikh* ed. Zafar Hasan, Delhi, 1918, p. 58.

41 Tavernier, I, p. 36; Thevenot, pp.72-73.

42 Thevenot, pp. 72-73.

As so far breeding of oxen is concerned, the most important user, the peasants, generally bred oxen for their use in large numbers, as it may be inferred from the statement of Abul Fazl that every part of the empire produced the gao (cow/oxen) of various kinds.[43] The extent of cultivation in Mughal India was much less than around 1910, it meant that the land available for grazing, both waste and forest was far greater in extent than around 1910.[44] Even cultivated zone had pockets of jungle and waste lands which were available for pasturage and as well for other use these belonged usually to the local *zamindars*.[45] Since it was possible to maintain oxen and cows on dried grass and hay etc. feeding them even during off seasons was not a problem. All these factors must have had a positive impact on the breeding of oxen by the peasants who must had kept more than four

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43 *A'in*, I, p.102.

44 Shireen Moosvi, *Economy of the Mughal Empire –A Statistical Study, c.1595* (henceforth Shireen Moosvi, *EME*), New Delhi, 1987, pp.70-71. She has estimated on the basis of measured area (*arazi*) statistics, that, the extent of cultivation in Akbar's time in India was 50 to 55% of what it was in the first decade of 20th century. And this estimate corroborated Irfan Habib's inference largely drawn from village Statistics, *Agrarin System*, 1999, pp. 1-24. W. H. Moreland was the first to make the attempt, *India at the Death of Akbar*, 1930, pp. 20-22. See especially for waste lands, scrubs and forests in Mughal India Shireen Moosvi, *Man and Nature in Mughal Era*, Symposia Papers: 5, India History Congress, 54th Session (Mysore, 1993); Shireen Moosvi, 'Ecology, Population Distribution, and Settlement Pattern in Mughal India' in *People, Taxation and Trade in Mughal India*, New Delhi, 2008, pp. 89-102.

45 Bayazid Biyat, *Tazkira -i Humayun-o Akbar*, ed. M. Hidayat Hosain, Calcutta, 1941, p. 316; Shireen Moosvi, *Man and Nature*, pp. 12-13.

bullocks per plough which were tax-free.[46] A traveller saw even in Bengal, a densely cultivated *suba* of Mughal Empire, 'pasturages' with 'enormous herds' of cattle.[47]

There were certain regions which bred special species of oxen. Gujarat produced the most celebrated oxen in India. Those were known not only for their good stature and swiftness but also for carrying heavy burden.[48] *Sarkar* of Sharifabad, in Bengal, bred a beautiful specie, white in colour, and of fine build, which were famous pack oxen.[49] In Deccan there were innumerable quantities of tame animals, oxen, cows, buffaloes, but cows from Telingana were famous one.[50] Hisar (now in Haryana) also bred oxen which were famous and were exported from there to other places.[51]

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46 *A'in*, I, p.199. In the reign of Akbar there were two cows and four bullock per plough as tax-free.

47 Manrique, II, p.123. Most of the European travellers found the oxen in all over India, such as Terry in *Early Travels*, p. 311; Pelsaert, p. 49; Tavernier, I, p. 32; Thevenot, pp. 72,73, 75; Fryer, I, pp. 295-296; III, p. 156.

48 *A'in*, I, p.102; II, p. 116; Abu'l Fazl reported that, though every part of the empire produced cattle (cow/oxen) of various kinds, those of the Gujarat were the best. Tavernier also noted about good features of Gujarat oxen (Tavernier, I, pp. 32-37). Later on Sujan Rai Bhandari testified the observation of Abu'l Fazl about the breed of Gujarat (Sujan Rai, pp. 56, 58). Ali Muhammad Khan also praises those oxen for their beauty and swiftness (*Mirat*, I, p.14).

49 Ibid.,I, p. 102; II, p.51. A peculiar feature of them that noted Abu'l Fazl in his *A'in* was that, they used to kneel down at the time of loading.

50 Ibid., II, p.110; *Relations of Golconda in the Early Seventeenth Century*, a collection of the 'relations' of Methwold (1-50), Schorer (51-65), and an anonymous Dutch factor (67-86), ed. and transl. W. H. Moreland, Hakluyt Society, London, 1931, pp. 63, 86; Thomas Bowrey, *A Geographical Account of Countries Round the Bay of Bengal, 1669 to 1679*, ed. R. C. Temple, New Delhi, 1993, p.128; Roe found plenty

Besides peasants who bred oxen mainly for their own use or for occasional sales, there were certain community who took great interest in the breeding of oxen. Banjaras were the most important class of breeders, who combined pastoralism with carrying trade.[52] Again there were certain nomad, who took great interest in the breeding of cattle and travelled long distance to graze their cattle.[53]

All over the empire periodic fairs, *hats,* etc. were held.[54] Even there were special marts for the cattle at many places such as at Agra, Mandhata etc.[55]We have references about the selling of cattle by the peasants and other people, who used to bring their cattle for sale in and around the city.[56] Naturally the prices of oxen varied from place to place and according to the built- breed as well as demand. Around Delhi, usual price of the ox has

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of cattle near Nandarbar on the route from Surat to Agra (Thomas Roe, *The Embassy*, p. 67).

51 Balkrishan Brahman, Add. 16859, ff. 59b-60a. Even in the beginning of 20th century oxen from Punjab were exported to other provinces (Moreland, *The Agriculture of United Provinces*, 1912, pp.120-21.

52 Irfan Habib, Merchant Communities, p.373.

53 Royal Commission on Agriculture, *Report,* London, 1928, p.198-9

54 Tavernier, I, p. 38, 238; Streynsham Master, *The Diaries of Streynsham Master, 1675-80, & other Contemporary Papers Relating Thereto*, vol. I, ed. R.C. Temple, London, 1911, p. 321. *The Cambridge Economic History of India, I: c.1200-c.1750*, Cambridge, 1982, p. 339-40, Fernand Braudel, *Civilization and Capitalism 15th -18th Century*, Vol. II, *The Wheels of Commerce*, transl. from the French by Sian Reynolds, London, 1982, p. 129.

55 Pelsaert, p. 4; Joannes De Laet, *Imperio Magmni Mogolis etc., 1631*, transl. J.S. Hoyland, annotated by S. N. Banerjee, *The Empire of the Great Mogul*, Bombay, 1928, p. 40; Mundy, II, p. 189; Thakur L'al, f. 35a.

56 *Mirat*, I, pp. 259-64; Irfan Habib, *Agrarian System*, p. 86.

been reported as not more than Rs.10 in the sixteen century.[57] In the reign of Shahjahan, 349 and 652 *gao* (cow, bull, and/or bullocks) from the *chakla* of Hisar (now in Haryana) were exported at the price of about Rs.7 ½ per head.[58] In the Deccan, particularly in Masulipatnam around 1608-14 the price was between 1 to 2 Pagodas (approx. Rs.3 to 6), and around 1618-22 was 6 or 8 shillings (approx.Rs.3 or 4).[59] In 1646 in Surat the price of the ordinary ox was Rs.7 ½ or Rs.8 which were certainly higher than usual since the English factors were even searching other places for lower price.[60] However certain breeds of good stature and swiftness were highly priced but were not used for carrying load and they were mostly used by people of high stature for their coaches or for riding only. The highly priced oxen were the Gujarat white oxen; in exceptional cases the price was as high as 100 *muhr* (about Rs.900). Though, they were generally priced between 10-20 *muhr* (Rs.90-180).[61] In mid seventeenth century, Tavernier bought a pair of those for Rs.600 and in the second half of seventeenth century, and Sujan Rai priced at Rs.500.[62] Thevenot reports that, Dutch had a pair of those at Ajmer, which cost them 200 *crowns* (approx. Rs.500) each.[63]However,

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[57] *Ain*, I, p.102.

[58] Balkrishan Brahman, ff. 59b-60a.

[59] *Relations*, pp.17, 63.

[60] *EFI, 1646-50*, p. 156.

[61] *A'in*, I, p. 102; (At the time of *A'in* the *muhr* was considered to be exactly nine rupees. See Irfan Habib, *Agrarian System*, p.436)

[62] Tavernier, I, p.37; Fryer, I, pp. 295-96; Sujan Rai. p.58

[63] Thevenot, p. 73.(a crown was approx. Rs. 2 ½)

Fryer in the eighth decade of seventeenth century, priced those Gujarat white ox at 30 or *40 larin* (Rs.12.3 or 16.4).[64]

OXEN IN IMPERIAL ESTABLISHMENTS:

Imperial establishment also used oxen for various purposes such as for carrying building materials, fuels, water, baggage, cheetah on carts for hunting, for *dak chaukis* etc.[65](see Plate-VIII, for carrying building materials for imperial establishments, Plates- XI &XII, for use of oxen in hunting). Abul Fazl noted that 600 carts were employed in carrying fuel for the imperial kitchen and 200 carts were employed in carrying building establishments.[66] Mughal emperors took great interest in the breeding of this animal. Akbar categorised the various breeds of oxen according to their suitability for the work and made specialist in-charge of each category.[67] At the death of Akbar there were 7000 oxen in the imperial stable.[68] Shireen Moosvi found the figure of 7000, given by Pelsaert by no means excessive, as at least 3200 oxen had to be employed in those 800 carts used in carrying fuels and building materials, as four oxen were required for a cart and at the

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64 Fryer, I, p. 296. Moreland noted that *larin*, a Persian money was worth less than half of one of Akbar's rupees (Moreland, *India at Death of Akbar*, p. 57).In 1635, between 'Scinda' and Persia the usual freight rates for indigo, sugar etc. was Rs.7 or 17 laris per 'corwaur'(*Kharwar*). Thus a *larin* must equal to Rs.0.41.

65 *A'in*, I, pp.28,103; Arif Qandahari, *Tarikh-i Akbari*, ed. Muinuddin Nadwi, Azhar Ali Dihlawi, and Imtiyaz Ali Arshi, Rampur, 1962. p. 145; Withington in *Early Travels*, p. 103; Manrique, II, p.278.

66 Ibid.,I, p.102.

67 Ibid., I, p.102.

68 Pelsaert, 134. Cf. Shireen Moosvi, *EME*, p.241.

same time oxen had to full fill other demands also.[69] In the imperial stable of Jahangir, there were at least 10,000 oxen.[70]Again there were about 6,300 Gujarat oxen, besides other, in the royal stable of Shahjahan.[71] Besides the emperors, the high officials of the empire, holding *mansab* had the obligation of keeping certain fixed number of carts, such as, according to *A'in*, a *mansabdar* of 10,000, had to keep 320 carts and that of 20, had to keep one cart.[72] *A'in* has detailed information regarding this obligation in the salary-schedule of the *mansabdars*, since the number of holders of various ranks can at least be worked out for the 40th year of Akbar's reign.[73] We can get the number of horses, elephants, beasts of burden and carts to be maintained by the *mansabdar* at least for that year (see APPENDIX-2A). And total number of carts kept by the nobles for that year was 13226. Taking at least two oxen for a cart, total number of oxen kept by the nobles must not be less then 26452.

2: CAMELS

In the desert region, that mainly covered the north-western part of the Mughal empire, owing to the scarcity of water, fodder and strong winds

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69 Shireen Moosvi, *EME*, p. 241.

70 Withington in *Early Travels*, p.103.

71 Manrique, II, p. 278.

72 *A'in*, I, pp. 124-131.

73 Shireen Moosvi, *EME*, p. 212 and table 9.2 on p. 214. However this obligation continued in the reign of other Mughal emperors also as it is confirmed from besides other regulations, from the regulation of *khurak-i dawwab,* but we do not find any other information in the form of table further in the reign of Jahangir, Shahjahan and Aurangzeb.

raising sand and dust and dunes, camel was the only animal naturally suitable for transport. The well known features which make camels suitable for journey in the desert are that the sole of its feet are covered by callous horny integuments, connecting the two toes upon which the animal walks and that its nostrils can be closed at will, a good protection against dust storm. Besides, this animal can survive for many days without water and fodder and can eat even those herbs and grass which are unfit for other animals. Camel is indifferent to the quality of water it drinks – brackish, stagnant or putrid. A remarkable feature of the camel is that it can go on toiling under the burden for a very long time without rest.

Camels were found in two species, the Bactrian (two-humped) and Dromedary (one-humped). However the Bactrian is unsuitable for the use in warm climates, but in ancient India it seems to have been the only species known. On the abacus of Ashoka's Udayagiri pillar in Central India, the two-humped camel is distinctly shown, and as early as the third century B. C. The first known sculptured representation of the dromedary is that of the Mandor freeze (Rajasthan) of the twelfth century.[74] (See Plate-V). This makes one wonder on what basis Kohler-Rollefson supposes that the one humped camel reached in India only in the fourteenth century.[75] Indeed, there is very good evidence for much earlier use of the dromedary in India.

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74 See J. H. Marshall and Daya Ram Sahni, *Archaeological Survey of India: Annual Report, 1909-10*, Calcutta, pp. 97-98, with illustration.

75 Kohler-Rollefson, 'The one-humped Camel in Asia: Origin, Utilization and Mechanism of Dispersal', in: *The Origin and Spread of Agriculture and Pastoralism in Eurasia'*, ed. David R. Harris, London, 1996, p. 282.

When in 712 A. D. Muhammad bin Qasim conquered Sind, he led a composite Arab army of horses, dromedaries (*ushtar*) and infantry.[76] But, in fact, the use of the dromedary in Sind was noticed earlier still by the Chinese pilgrim Huien Tsiang when he visited Sind in 640's. He noticed that in Sin-tu (Sind) "the camels are small in size and have only one hump".[77] Thus the dromedary has a much earlier history in India than the period of Delhi Sultanate.

Kohler-Rollefson is correct in emphasizing from her research that in India the dromedary is raised neither for meat, nor milk, but solely as draught animal, for working Persian wells or ploughing, but above all, for transport.[78]

It may be mentioned that in Mughal India, the Bactrian camel (two-humped) kept only for a curiosity.[79]It was the dromedary which alone did all the work.

It is evident from our sources that on several routes especially passing through the desert and dry regions, that joined the major trade centres of the empire, camels were employed as beast of burden. From Agra, Surat was linked by two separate important routes. One ran via Gwalior, Sironj and Burhanpur and other, via Bayana, Ajmer and

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76 Anonymous Arabic chronicle, transl. Ali Kufi into Persian, *Chachnama*, ed. Umar Daudpota, Delhi, 1939, p.110.

77 Samual Beal (tr.), *Si-yu-ki, Buddhist Records of the Western World*, London, 1884, II, p.272.

78 Kohler-Rollefson, op. cit., pp. 284-85.

79 *A'in*, I, p .99; Mundy, II, pp. 40. 237.

Ahmadabad. The route via Burhanpur was branched into two at Duraha and rejoined at Burhanpur. One branch of this route passed through Narwar, Handia etc. and crossed Narmada at Handia.[80] Other branch passed through Sarangpur, Sunera, Ujjain, Akbarpur etc. and crossed Narmada at Akbarpur.[81] The branch via Narwar was shorter than the branch via Sarangpur, Sunera etc. The route via Ajmer and Ahmadabad mostly passed through the deserts and hilly terrains. This route also branched into two at Jalor and rejoined at Magarvada. The eastern branch through Sirohi was fit for both carts and camels and the western branch through Merta, Bhinmal, Dantivada, a shorter route, was fit for camels only.[82] On both of these routes above mentioned, joining Agra with Surat, camels were very important means of transport.[83] On the route from Ahmadabad to Nagarparkar, which further went from thence to Thatta, and the route from Ajmer to Thatta via Jun, there was scarcity of drinking water and fodder, and therefore, transportation by camels was the only viable option.[84] Routes linking Agra to Multan passing through deserts and dry region, via Ajmer, Merta and Jaisalmer and again Multan to Thatta, were also mainly fit for

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80 Mundy, II, pp. 51-55; Tavernier, II, pp. 54-55; Irfan Habib, *Atlas of the Mughal Empire*, Delhi, 1982, p.38.

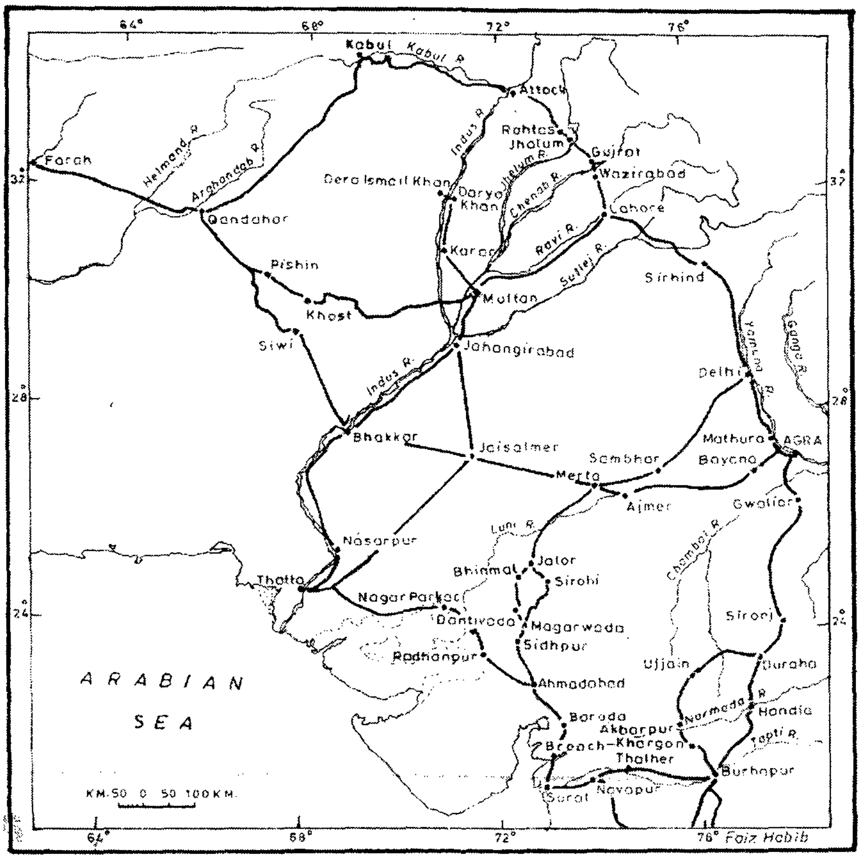
81 Finch in *Early Travels*, pp. 139-43.

82 Mundy, II, pp. 249-50, 261; Finch in *Early Travels*, pp. 170-73.

83 For use of camels on these routes there are numerous evidences, such as in *Early Travels*, pp. 140, 222, 223; *Letters recd.*, vol. IV, p. 252; vol. VI, pp.237-38; *EFI, 1618-21*, pp. 47, 51, 73-74, 90, 188, 230, 322, 336, 340, 345-46, ff;*1630-33*, pp. 83, 215, 216, ff; 1634-36, p. 89; *1646-50*, pp. 193, 220-21, 299, 300; *DFI*, vol. I, pp. 136, 138; vol. II, p.342; Mundy, II, 39-65, 225-276, 277-298.

84 Withington in *Early Travels*, pp. 208-17; Irfan Habib, *Atlas*, p. 16.

camels.[85] Again, on route from Lahore to Qandahar running via Kabul as well as via Multan merchants had to pass through desert and dry region, without meeting water resources sometimes for three or four days, camels were employed for transport.[86] (For routes see Map 2.1).



Map 2.1: Mughal Camel Routes in North-Western India
(based on Irfan Habib, *Atlas of the Mughal Empire*)

There was no uniformity about the loads carried by camels in the different regions. Under Akbar's regulations a first class *bughdi* (one-humped male), carried not more than 10 *mans* (251.1 kg.) while a second class *bughdi*, a superior *jammaza* (one-humped female) and a *lok* (country-

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[85] Joseph Salbancke, '*voyage*' *1609*, *Purchas his Pilgrimes*, III, pp. 89; Pelsaert, p. 32; *EFI, 1637-41*, pp. 137-38, 275; Manrique, II, pp. 241, 243.

[86] Salbancke, *Purchas*, III, pp. 84-85; Steel and Crowther, *Purchas*, IV, pp.269-272; Manrique, II, pp. 255-9; Tavernier, II, p. 73.

bred camel), could carry 8 *mans* (200.88 kg.). A second class *jammaza* (one-humped female) and a *lok* (country bred camel), could carry 6 *mans* (150.66 kg.).[87] In a letter dated 1st December 1616, Roe mentioned that a camel could carry 1/3rd of the load carried by a cart.[88] In 1617, the English factors made three types of bales to be loaded on camels weighing 3 ¾ and 4 ½ maunds, and on each camel two bales of such types were loaded. It means that the weight to be loaded on camels varied from 7½ to 9 maunds (or 226.05 to 271.26 kg. per camel).[89] In 1619, on an average 9 'pakka' maunds (271.26 kg.) were loaded on a camel.[90] In 1635, from Lahri Bander to Thatta 6 maunds (200.88 kg.) were loaded on a camel.[91]The camels during Aurangzeb's visit, to Kashmir, carried four hundred and eighty pounds weight of silver, i.e. 217.872 Kg.[92] According to Moreland, the

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87 *A'in*, I, pp. 101-2; Cf. Irfan Habib, *Agrarian System*, pp. 420-21, *man-i-Akbari* based on 28 *dam* equal to 51.63 lb. (23.44 kg) and that of 30 *dams* the *ser* = to about 55.32 lb. (25.11 kg). Akbar had given the name of *bughur* to the two-humped camel, and *bughdi* to the male and *jammaza* to the female of the one-humped species. The male offspring of a *bughur* and a *jammaza* was called *ghurd* and the female offspring was called *maya ghurd*. If a *bughdi* or a *lok* coupled with a *jammaza*, the young one was called *bughdi* or *lok* respectively; but if a *bughdi* or *lok* coupled with an *arwana* the young male was named after its sire and the female after its dam (*A'in*, I, p. 101).

88 *Letters recd.*, Vol. IV, p.252.

89 *Letters Recd.*, Vol., VI, p.237. A *man-i-Jahangiri* based on the *ser* of 36 *dams* was about 66.38 lb. or 30.14 kg. (Irfan Habib, *Agrarian System*, p. 421).

90 *EFI, 1618-21*, p. 74.

91 Ibid., 1634-36, p. 125. A *man-i-Shahjahani* based on *ser* of 40 *dams* should have equal to about 73.75 lb. avoirdupois or 33.48 kg. (Irfan Habib, *Agrarian System*, pp. 421-22).

92 Manucci, I, p.62.

average load carried by camels was about 225 kg or 500 lb.[93] and this largely conforms to the information in our sources.

As far as freight charge is concerned, and most of the information come from European records, specially from those of the English East India Company. I have tried to collect some of the quotations of freight charge obtained from the above records in Table: 2.1. These quotations are generally from the seventeenth century. During this period there were variations in weight (maund or *man*) and since for comparative purposes adjustments have to be made for them, I have put the rates freight charge/maund in three different columns, the third converting the cost into 100 kg./Rs./mile. The *man-i-Shahjahani*, it should be noted, continued under Aurangzeb (1659-1707) as the standard unit of weight in most of the parts of the empire. For the distance between the places, I have mostly relied upon '*Memoir of a Map of Hindoostan or the Mogul Empire,* drawn up by James Rennel.

Table- 2.1: Freight Charge of Camels on Major Routes

Initial point and destination	Duration (Days)	Via	Approx. Distance (in mile)	Year	Freight charges			References
					man-i Jahangiri/Rs.	*man-i Shahjahani*/Rs.	100kg /Rs./mile	
Agra-Surat	50	Burhanpur	745	1617	1.56	-	0.0069	Letters recd. VI, p. 237.
,,	-	-		1618	1.40	-	0.0062	EFI, 1618-21, p.47.
,,	-	-		1619	1.64	-	0.0073	Ibid.,pp.51, 74.
Agra-Thatta	35-40	Jaisalmer		1639	-	2.66		Ibid.,1637-41, p. 137-38.
Agra-Ahmadabad	-	-	534	1651		1.687	0.0094	Ibid.,1651-55, p.52.
Lahri Bandar-Thatta	-	-	36	1635	-	0.25	0.0069	Ibid.,1634-36, p. 125.

93 Moreland, *India at the Death of Akbar*, pp. 206-07, and *India from Akbar to Aurangzeb*, pp. 340-41.

From Table: 2.1, it is clear that the freight charged over different routes varied from route to route and even on same route in different years. It clearly reflects from the freight charges for three consecutive years, on Agra-Surat route via Burhanpur, that freight for 100 kg weight for distance of a mile was not above Rs.0.0073. In 1617, the English factors at Agra hired camels at the rate of 11 ¾ *Jahangiri* rupees per camel to carry 9 maunds to Surat, i.e. at 1.56 rupees (1.3 *Jahangiri* rupees) per maund for the whole distance or Rs.0.0067/mile for a 100kg weight.[94] In 1618 12½ rupees was paid for each camel's load i.e. 1.40 rupees per maund for the journey or Rs.0.0062 was charged for a mile for 100 kg weight.[95] In February 9th and 15th 1619, noted that the freight between Agra and Surat was 3 ½ *mahmudis* i.e. Rs.1.4 per camel, which is not possible.[96] Again in a letter dated 20th February 1619, they wrote that they paid 14 ¾ rupees for 9 maund 'pakka' per camel, i.e. at 1.64 rupees per maund or Rs.0.0073 was paid for 100 kg weight for a mile.[97] In 1639, from Agra to Thatta via Jaisalmer a journey not above 35 to 40 days, camels could be hired at 22 rupees i.e. at 2.66 rupees per maund or 2.39 rupees per *Jahangiri* maund.[98]

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94 *Letters Recd.*, Vol. VI, p. 237.

95 *EFI, 1618-21*, p. 47.

96 Ibid. 1618-21, pp. 47,51. Actually there seems a mistake in printing or copying that 'per camel' has been written in place of 'per maund', which will then be in accordance with the earlier year's freight charge.

97 Ibid., p.74.

98 Ibid. 1637-41, pp. 135-138.

In 1651, for Ahmadabad from Agra, camels were hired at 15 3/16 rupees per camel load, i.e. at 1.6875 rupees per maund i.e. 100 kg weight could be carried for mile by paying Rs.0.0094.[99] In 1635, from Lahari Bandar to Thatta a distance about 36 miles, a camel was hired at 1½ rupees for carrying 6 maunds i.e. 0.25 rupees per maund or by paying Rs.0.0069, 100 kg could be carried for a mile.[100]

As far as pace is concerned, camels were also a slow mode of transport, in 1617 loaded camels took 50 days to traverse, a time equal as taken by carts from Agra to Surat.[101] In 1648 it is reported that camels were hired with expectation to reach Ahmadabad from Agra in 45 days.[102] Withington speculated in the second decade of seventeenth century, that goods from Agra to Bhakkar be conveyed in twenty days.[103]From Agra to Lahore, in 1639, camel did not use to take more than above 22 days ordinarily and again the route from Agra to Thatta via Jaisalmer, was covered in 35 to 40 days.

In Mughal India camels were mainly bred in the north-western part of the empire. Abul Fazl noted that they were bred near Ajmer, Jodhpur, Nagor, Bikanir, Jaisalmer, Bhatinda, Bhatnir, and in Gujarat, Sind, etc.[104]

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99 Ibid. 1651-55, p. 52.

100 Ibid., 1634-36, p. 125.

101 Letters recd., vol. VI, p.238. However daily average might be same as that of the carts, but in an hour a camel could cover more distance, as they travelled, on an average only for five hours in a day.(Ibid., IV, p. 252)

102 EFI, 1646-48, pp. 220-21.

103 Withington in Early Travels, p.218.

104 *A'in*, I, p.99.

Cutch in *suba* of Gujarat, produced a very good variety of camels.[105] Again in the vicinity of Junagarh in the jungle called Gir, inhabited by Kolis, special camels were bred; and Nawanagar also provided abundance of camels.[106] In the *suba* of Sind the camels were the most numerous. Some persons had even 10,000 and more.[107] In Thatta in the forest of Lakhi and from Sihwan to Siwi, which was called Katehar, hill camels were found in abundance.[108]

Certain communities specialised in breeding and rearing of camels. In the *pargana* of Alor in Bhakkar, people called Pawar bred camels in abundance and they let them on hire for transporting goods to Jaisalmer, Multan, and Qandahar etc.[109] In *pargana* of Chakrhala, *sarkar* Sehwan, and the *pargana* of San, hill people called Nuhmardi were the main cattle breeder and bred especially camels, and also horses, goats etc. and sometime barter these animals against grain, cloth, arms etc.[110] Jats were also involved in the breeding of camels.[111] In Multan, Baluchis reared camels and were good camelmen.[112]

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105 Ibid.

106 Ibid. II, pp. 117, 119.

107 Ibid., I, p. 99, II, p.119.

108 Ibid., II, p. 165; Yusuf Mirak, *Tarikh-i-Mazhar-i-Shahjahani, A. D. 1634*, ed. Saiyid Husamuddin Rashidi, Karachi, 1962, p.32.

109 *Mazhar*, pp. 5-6.

110 Ibid., pp. 88, 239.

111 Ibid., p. 240.

112 Pelsaert, p. 31; Nicolao Manucci, *Storia do Mogor*, 1656-1712, transl. W. Irvin, 4 vols. London, 1907-8, reprint, Delhi, 1990, Vol. II, p. 427; De Laet, p.78.

There are scanty references about the prices of camels. In the period of Akbar, prices of different breeds varied as follows: a *bughdi* (two-humped) could be bought from 5 to 12 *muhr* (Rs.45 to 108 as one *muhr* was equal to Rs.9), *jammaza* (one-humped female) from 3 to 10 *muhr* (Rs.27 to 90), a *bughur* (one-humped male) from 3 to 7 *muhr* (Rs.27 to 63), a mongrel *lok* from 8 to 9 *muhr* (Rs.72 to 81), a country-bred *lok* from 3 to 8 *muhr* (Rs.27 to 72), an *arwana* from 2 to 4 *muhr* (Rs.18 to 36).[113] In 1641, Manrique purchased two at Multan for 200 rupees.[114]

The leader of the caravan of camels was called *muqaddam*, or Caravan *bakhshi*.[115] Camelmen used to have consultations among themselves for every matter on the route.[116] Camels marched in files and a few camelmen could manage many camels.[117] Goods were loaded on the back of the camel in two bales of equal weight on each side tied with rope.[118] (See Plate-VI, for packs being prepared for and loaded on camel). Packs were marked with special marks to insure the ownership of the goods of different merchants.[119] To evade the heat of the day in the desert, the

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113 Ibid., I, p. 101. At the time of *A'in* a *muhr* was considered to be exactly nine rupees (Irfan Habib, *Agrarian System*, p.436).

114 Manrique, II, p. 248.

115 *EFI*, 1618-21, p.74; Richard Steel and John Crowther, *Purchas his Pilgrimes*, pub. MacLehose, Glasgow, 1905, Vol. IV, p. 270; Peter Mundy, II, pp. 288-89; Manrique, II, pp. 340, 344, 351 etc.

116 Mundy, II, p. 289.

117 *A'in*, I, p. 99; *Letters Recd.* IV, p. 252; Mundy, II, p. 257.

118 M. S. Randhawa, *Paintings of Baburnama*, National Museum, New Delhi, 1983, Plate No. 1, p.18.

119 *Letters Recd.* Vol. IV, p. 237; Manrique, II, p. 248.

journey was undertaken before dawn to last till noon and sometimes was entirely conducted at night.[120] At night they marched with the help of stars.[121] Spare camels were taken in case any camel die or fall ill.[122]

Besides certain advantages, camel transport had some disadvantages also. As camels marched generally, 5 hours in a day and had to unload every day, there were always possibilities of goods falling down from the back of the camel and at every halt some risk to goods could be caused at unloading. Camels could be stolen as among numerous camels, each animal could not be remembered and could be hidden in the bushes.[123] As to evade the heat of the day, camels marched before morning till noon; camelmen had to wake up early and at the stopping place at noon had to unload the goods and to pitch up tents.[124] Camelmen often had to drink generally brackish water and even that water was not available most of the times.[125] In the desert they were troubled by hot winds and shifting sand dunes among which they might cover their way.[126]

CAMELS IN THE IMPERIAL ESTABLISHMENTS:

In the imperial establishment camels were mainly used for riding, carrying burdens and in fighting. The *A'in* informs us about a special type

120 Manrique, II, p. 341; Mundy, II, pp. 54, 246; *Mazhar*, p. 26.

121 *Mazhar*, p. 27.

122 Ibid., p.282.

123 *Letters Recd.*, Vol. IV, p. 252.

124 Manrique, II, p. 341.

125 *Early Travels*, pp. 209-20; Steel and Crowther, *Purchas*, IV, pp. 270-73; Mundy, II, pp. 245-246 etc.; Manrique, II, p.241.

126 *Mazhar*, pp. 27-28; Manrique, II, pp.349; Tavernier, I, p. 75.

of carriage called *Mihaffa*, which was a sort of wooden turret, very comfortable, with two poles, by which it was suspended, between two camels for carrying persons. In the imperial stable, special trainers were kept to train a camel to cover long distance in a short time. However horses and swift runner were mostly used for *dak-chaukis*, but a few of these swift camels were kept always ready for every direction at the palace. In the imperial establishment camels bred in Thatta were specially reputed for carrying burden. Akbar gave so much importance to this animal that he had special stables and different varieties of camels were put together to obtain mixed breeds. For this purpose Akbar entrusted a class of people called Raibari, who were well acquainted with the country-bred camel, *lok*, and put fifty-stud *arwanas* (female camels) and a *bughur* (Bactrian camel) and two *loks* in charge of Raibari. The quality of the country bred camels improved very much, and the *A'in* claims that the Indian camels now surpassed those of Iran and Turan.[127] At the death of Akbar there were 6,223 camels in the imperial stable.[128] However Withington found only 2,000 camels in the imperial stable of Jahangir.[129] Manrique noted that combined number of camels and mules maintained at the royal cost were 5,223. The high officials of the empire, holding *mansab* had the obligation of keeping certain fixed number of camels, such as, according to *A'in*, a *mansabdar* of 10,000, had to keep 800 camels and that of 20, had to keep 6

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127 *A'in*, I, p. 99.

128 Pelsaert, *A Contemporary Dutch Chronicle of Mughal India*, p. 35.

129 Withington in *Early Travels*, p. 104.

camels.[130] In the 40th regnal year of Akbar, total number of to be kept by *mansabdars* were 35,348. (See Appendix-2A).

3: MULES and ASSES

"Differing from the custom in Persia, you do not employ in India in caravans or journeys either asses, mules, or horses, everything being carried here on oxen or by wagon, as the country is sufficiently level."[131] The above observation of Tavernier in mid seventeenth century seems partly to be correct for the "sufficiently level" part of India, but when we turn towards the hilly and mountainous part of India the "best animal for carrying burdens and travelling" found to be mule, the cross of two distinct species (*Equus Caballus Linn.*), the horse and (*Equus Asinus Linn.*), the ass.[132] The mule posses the strength of horse and patience of ass and if it has not the intelligence of former, it does not have the cupidity of the latter. It never forgets the way it has once travelled.[133]

Mules do not bred among themselves and only rare instances or exceptions are recorded and each time a mare is coupled with a male ass, however the opposite connexion is also known to take place. The male resembles its dam.[134]During Akbar's reign the area around Pakhli and its

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130 *A'in*, I, pp. 124-131.

131 Tavernier, II, p. 32.

132 *A'in*, I, p. 103; Mounstuart Elphinstone, *An Account of Kingdome of Caubul and its dependencies in Persia, Tatrtary and India,* London, 1815, 'new and revised edn.' London, 1839, I, p. 189; Watt, ,*DEP*, IV, p. 297.

133 Ibid., I, p. 103.

134 Ibid.

neighbourhood was a reputed breeding centre for mules. Abul Fazl says that rearing and breeding of mule was considered derogatory by the people of India partly due to the reason they looked down upon mules as mere asses but due to interest shown by Akbar in breeding and rearing mule, the attitude began to change.[135] Later on, in the west of Punjab mules were bred, those to the west of Indus being better in quality, quality improved as one went further westward.[136] Hazara district was famous for its mule breeding.[137] In the region of Tibet mule were large and very strong.[138] Jahangir describes the Kashmiri mules as small in size and unfit for heavy load.[139] However I. Desederi reports in the 18th century that for the region of Kashmir, Laddakh and Tibet that, mules were able to carry heavy loads during long journeys lasting for months and with scant food.[140]

Mughal emperors showed much interest in keeping this animal. At the death of Akbar there were 260 Mules in the imperial stable.[141] According to Withington in the royal stable of Jahangir there were 1000 mules.[142] Besides the emperors, the high officials of the empire, holding *mansab* had the obligation of keeping certain fixed number of mules, such

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135 Ibid., I, p. 104.

136 Elphinston *Caubul*, I, p.189.

137 *Hazara District Gazett*, H D. Watson, London.1907, p. 65.

138 I. Desideri, *An Account of Tibet: The Travels of Ippoloito Desideri of Pistoia, S. J. 1712-27*, transl. Philippo de Filippi, London, 1932, New Delhi, 1995, p. 124.

139 *Tuzuk*, p. 291.

140 Desideri, p. 124.

141 Francisco Pelsaert, *A Contemporary Dutch Chronicle of Mughal India*, p. 35; Shireen Moosvi, *EME*, p. 241.

142 Hawkins in *Early Travals*, p. 104.

as, according to *A'in*, a *mansabdar* of 10,000, had to keep 200 mules and that of 500, had to keep 10 mules.[143] (See Appendix-2A). Wealthy people, Thevenot says also had mules besides other animals.[144]

Mules were usually imported from Iraq-i Arab and Iraq-i Ajam.[145] The Iranian breed was held so superior that the King of Iran sent mules as gift to Jahangir.[146]

The information about the price of mules is rather meagre however Abul Fazl records the very superior mules were often sold at Rs.1000 per head.[147] The prices of Tibetan mules were same as that of good horse.[148]

Mules were the best animal to carry the loads over the uneven ground as they have soft hooves.[149] Ippolito Desideri who visited Tibet via Kashmir and Ladakh in early eighteenth century found large and very strong mules, able to carry heavy loads during long journeys lasting for months and with scant food.[150] In the Mughal Imperial camp mules used for carrying luggage and kitchen utensils.[151]

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143 *A'in*, I, pp. 124-131.

144 Thevenot, p.62.

145 *Ain*, I, p.104.

146 Thomas Reo, *Embassy....*, p. 259.

147 *A'in*, I, p.104.

148 Desideri, p. 124.

149 *Ain*, I. p. 103.

150 Desideri, p. 124.

151 Bernier, p. 359; Manucci, I, p. 62.

As far as breeding of asses is concerned, they were found in all parts of India, Ladakh, Kashmir, Punjab, Sind etc.[152] In Kashmir and Sind asses appear to provide the main means oif transport to peasant that even the revenue demand in kind was stated in terms of *kharwar* i.e. ass load.[153] Kathiawar produce asses of high breeds of which Halar or Jalwad breed was one of the strongest and largest. The Bhutia of Himalaya had a very small, dark or almost black donkey with long shaggy hair.[154] The donkeys of Tibet were strong.[155]

As asses are small in size, they were unfit for saddle ridding and were only used for carrying light burdens. Asses were generally used by the poorer section such as washer man, potters, tinkers etc. both for ridding and carrying loads.[156] (See Plate-VII). However Ovington when describing the means of carrying goods to Surat also mentioned the asses besides other.[157] In certain parts asses were also used for agricultural purposes such as in ploughing, transporting manure in the field and produce to the market.[158]

As far as loads carried by asses is concerned, in various contemporary sources we came across the term 'ass-load' (*kharwar*) occurs

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152 Manucci, II, 1972, p. 400; Watt, IV, p. 297. Buchanan in Martin, *Eastern Iindia*, reprint, Delhi, 1976, Vol. I, pp.387,559 &Vol. II, p.535; Moorcroft and Trebeck, *Travels in the Himalayan Province of Hindustan...*, London, 1837, reprint, New Delhi, 1971, Vol. I, p. 309.

153 *A'in*, II,pp.175-76; *Mazhar*, pp.146 & 182-3.

154 Watt, *DEP*, IV, p. 297.

155 I. Desideri, p.124.

156 Watt, *DEP*, IV, p. 297; Buchanan in Martin, I, 387, 559, &II, 535, 581.

157 Ovington, p. 134.

158 Elphinston, *Caubul*, I, p. 189.

and its weight is also given, but after careful examination, Irfan Habib's conclusion is that the *kharwar* was used more as a unit of weight and was not always meant the actual load carried on an ass.[159] Only value of *kharwar* given by Abul Fazl seems actual weight carried by an ass, he equates one *kharwar* in Kashmir with 3 *mans* and 8 *sers* in *Akbarshahi* weight, or 177.02 lb. avdp. (80.37 kg.), which is in accordance with the value assigned by Lawrence to a *kharwar* in eighteenth century.[160] *Mazhar*, equates a *kharwar* with 60 *kasa* i.e. 9 or 10 *man-i Jahangiri* (270.93 or 301.8 kg).[161] Whereas English Factors at Thatta in 1635 equated a 'corwaur' with 8 *man-i Shahjahani* (268 kg). Obviously too heavy to be carried by an ass.

As far as pace of the mules and asses is concerned, we have almost no reference so far in our sources. Only later accounts are helpful in this regard. Burnes says that a mule with a light weight covered 4.8 Km in an hour,[162] and according to Francis Buchanan with a weight of 40 seers of

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159 Abul Fazl, *Akbarnama,* ed. Agha Ahmad Ali and Abdu-r Rahim, Bib. Ind., 3 vols. Calcutta, 1873-87, III, p. 548; *A'in*, II, pp. 175-76; whereas English Factors at Thatta in 1635 equated a 'corwaur' with 8 *man-i Shahjahani*, or some 590 lb. avdp. (268 kg) (*EFI, 1634-36*, p. 133) [Cf. Irfan Habib, *Agrarian System*, pp. 427-28)]

160 *AN*, III, p. 548; *A'in*, II, pp. 175-76. Lawrence, assigned *kharwar* a weight of 177.74 lb. (Walter Lawrence, *The Valley of Kashmir*, Oxford 1895, p.242).

161 *Mazhar*, pp. 146, 182. Cf. Irfan Habib, *Agrarian System*, p. 427.

162 Alexander Burnes, *Travels into Bokhara, contaning a Narrative of the Voyage on the Indus: from the sea to Lahore*, London, 1834, with introduction by James Lunt, Krachi, 1973, vol. II, p. 147.

grain weighing about 85 pounds an ass could cover 3 cosses or 16 Km in a day.[163]

4: Other pack animals

Besides oxen, camels, mules and asses, the indigenous variety of horses, known as *tangan* and *gunt* etc. were also utilized by the people especially in the mountainous region for carrying goods and persons also. In Mughal India *gunt* found in Kashmir, Ghorghat, and Kumaun, and in northern mountains of Oudh and *tangan* found in Kuch Bihar, were famous for their endurance.[164] Abul Fazl noted that in the northern mountains goods were carried on *gunt* besides other means of transport.[165] Jahangir as well Mutamad Khan noted that in Kashmir *gunt* was major means of conveyance.[166] Tavernier during his journey from Patna to Bhutan, noted about indigenous horses at Gorakhpur that " these horses are by nature so small that when a man is upon them his feet touch the ground, but they are otherwise strong, and go at an amble, doing up to 20 leagues at a stretch, and eating and drinking but little ... and when you enter the mountains you only use that means of carriage, it being necessary to leave all the others behind, which become useless on account of the numerous and very narrow

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163 F. Buchanan, *A Journey from....*, II, p. 181; Cf. Jean Deloch, I, p. 234.

164 *A'in*, I, p.94; II, pp. 51, 78-9, 135; *Tuzuk*, pp. 106, 301; *Iqbalnama -i Jahangiri*, p.154; *Alamgirnama*, pp. 690, 725, *Haft-Iqlim*, The Geographyical and Biographical Encyclopaedia of Amin Ahmad Razi, ed. A. H. Harley, Khan Bahadur Maulvi Abdul Muqtadir and Mahfuz-ul Haq, Calcatta, 1939, p. 100.

165 Ibid., p.78.

166 *Tuzuk*, p. 301; *Iqbalnama -i Jahangiri*, p.154.

passes. The horses even, though strong and small, often have difficulty in getting through".[167] In Kashmir sheep known as Handu, and Heronry were also used for carrying burden.[168] Goats and Yaks were also famous in the mountains for carrying goods.[169]

So far as price of indigenous horses is concerned, we have very scanty information about it. Tavernier noted about some of indigenous horses cost as much as 200 ecus (Rs.400).[170] The price seems very high and it is certainly not the price of general indigenous horses.

5: Carts

Carts were also used for carrying loads as already mentioned. These carts were drawn mostly by oxen though sometime buffaloes were also used. While we have references about the coaches drawn by horses but evidence for cart drawn by horses for transporting merchandise are not forthcoming.[171] However camels were also used to draw carts in the desert region.[172] (Plate- VI). All over the Mughal Empire, ox-drawn carts were

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167 Tavernier, II, p.205.

168 *A'in,* II, p. 172; Irfan Habib, *Atlas*, pp. 7 and 12.

169 Ibid., p. 78;Tavernier, II, pp.206-7; Jean Deloch, I, pp. 226-28.

170 Tavernier, II, p. 205; one ecu was equal to 2 rupees (Ibid., I, p. 329).

171 For coach drawn by horses, see Monserate, p.199. See also A.J.Qaisar, *The Indian Response to European Technology and Culture AD 1498-1707*, p. 40.

172 For earlier evidence for cart drawn by dromedary, see J. H. Marshall and Daya Ram Sahni, Archaeological Survey of India: *Annual Report, 1909-10*, Calcutta, pp., 97-98, with illustration from the Mandor Freez in Rajasthan, which depicts in the twelfth century, a cart drawn by dromedary.

generally utilised by the transporters to carry goods.[173] Fryer who came to India in 1670s, says, "contrary to whatever we found in any place of Persia, where are neither carts, coaches, or wains ... here the Roads are pester'd with caphalaes of oxen, camels and buffalaes with heavy waggons drawn by teams of oxen, yok'd Eight, sometimes a Dozen or sixteen times double bringing and carrying Goods of all sorts".[174] Carts provided the main means of transport in Gujarat.[175] It is evident from the English Factory Records that carts formed a major means of transport between Patna and Agra, but also an important means between Agra and Surat, and Agra and Lahore, and beyond up to Multan.[176] The European Companies, especially the English and the Dutch so much used carts for carrying merchandise that they even competed with each other in procuring these. In 1623 in Gujarat, the Dutch by paying more to the carters got hold of 35 carts charted by the English and persuaded the carter to take their goods first.[177] The Dutch had even sometimes monopolised the carts, due to which the English factors faced

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173 Tavernier, I, p. 32.

174 Fryer, III, p. 156.

175 *A'in*, II, p.115; Jahangir, *Tuzuk-i- Jahangiri*, ed. Syed Ahmad Khan, Aligarh, 1864, p. 205.

176 For carrying merchandise between Patna and Agra, cart was the 'usual method of conveyance' (*EFI*, *1618-21*, ed. W. Foster, p. 195), and again, 'here beeinge noe other conveyance to Agra but carts,' (ibid. p.258). Between Agra and Thatta, merchants generally used to hire carts for carrying merchandise especially indigo and sugar, up to Lahore or Multan and from thence they used to carry it by river to Thatta (Ibid., *1634-36*, pp.130, 192; see also Ibid., *1637-41*, pp. 135,198).

177 *EFI*, *1622-23*, p. 287.

problem in dispatching their goods.[178]Therefore the English Factors used to secure the carts beforehand to avoid being forestalled by the Dutch and others.[179] In the Deccan plateau, carts were utilised at least up to Golconda, and Dutch Factory Records show that spices were brought from Masulipatnam, via Burhanpur in carts. During 1622-27, between 300 and 800 carts brought such an amount of spices that the price of spices reached lowest level and it compelled the Dutch Factors to think about properly regulating the Company's trade in Coromandel.[180] Thevenot in 1666 went from Surat to Bagnagar (Golconda) in company of Monseiur Bazou, a French Merchant, who had ten wagons with him.[181] However in the extreme South India, carts were not utilised on large scale for carrying burden, being utilised for agricultural purposes such as for carrying harvest and manures only.[182] It is partially inaccurate, then, to suggest that, carts had conspicuously been absent in the Deccan plateau till the advent of British rule.[183]

We have some information regarding the shape and design of the coaches which were used for carrying people but very little information

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178 Ibid., p.234.

179 Ibid., 1630-33, p.61.

180 *Dutch Factories in India, 1624-27*, transl. & ed. Om Prakash, New Delhi, 2007, Vol. 2, pp.342-43.

181 Thevenot, p.102.

182 Francis Buchanan, *Journey* (1800-01), London, 1807, I, p.184.

183 Amalendu Guha, 'Raw Cotton of Western India: Output, Transportation and Marketing, 1750-1850', *Indian Economic and Social History Review* (*IESHR*), Vol.IX, No.1, March 1972.pp. 20-22.

about the carts which were used for carrying goods, except in some paintings and European travellers' accounts. The carts for goods-carriage were generally of two solid wheels and each wheel of single timber like mill-stone, having always a thick frame of wood. Abu'l Fazl, refers to two wheeled carts in Gujarat.[184] Thevanot, noticed that "the wheels of wagons or carts for carrying of goods have no spoakes, they are made of one whole piece of solid Timber, in form of a mill-stone, and the bottom of the cart is always a thick frame of wood."[185] Fryer, on the other hand, found coaches and carts much alike, differing only on the basis of stronger structure with main timber for strength.[186] (See Plates- VIII, IX). A cart was usually drawn by a pair of oxen, but whenever the load carried heavy or ground was uneven more than two oxen were used. Sometimes six, eight, twelve or even sixteen oxen were used for this purpose.[187] Thevenot noted that "these carts are drawn by eight or ten oxen according to the heavyness of the loads."[188] (See Plate-XIII, for light cart and Plate-IX, for a series of oxen used for carrying heavy load on a cart).

Henry M. Elliot in his Memoir has named the different parts of carts of North-western Provinces (present Uttar Pradesh), which are not so much

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184 *A'in,* II, p. 115.

185 Thevenot, pp. 73, 75.

186 Fryer, III, p. 157.

187 For carts drawn by teams of oxen see Peter Mundy, II, p.281;Tavernier, I, pp. 35, 93, 119; Thevenot, pp. 73, 75; John Marshall, *John Marshall in India,* ed. S. A. Khan, London, 1927,p. 425; Fryer, III p. 156.

188 Thevenot, p. 75.

different from the carts of Mughal period, according to him: *Harsa* is the long wood extending on either side, from the front to the back; the transverse pieces are called *Patti*; those extending beyond the wheels are called *Takani*. *Bank*, or *Painjani* is the wood that joins the *takanis*; and *Chakol*, the pin by which wheel is attached to the *Bank*; *Sujah*, the pins which attach the *Bank* to the *Takanis*; *Bankara* and *Gaz*, two pieces of wood in the front of the *Gari*, where it narrows to a point; *Phannah* and *Untara* are parts that project beyond the yoke,....*Nah*, the nave; *Putthi*,the quadrant of a wheel.....'.[189]

As far as cartage is concerned, most of the information come from European records, specially from those of the English East India Company and some from the Dutch. I have tried to collect some of the quotations of cartage obtained from the above records in Table No.2.2. These quotations are generally from the seventeenth century. During this period there were variations in weight (maund or man) and since for comparative purposes adjustments have to be made for them, I have put the rates cartage/maund in three different columns, the third converting the cost into 100 Kg./Rs./mile. The *man-i-Shahjahani*, it should be noted, continued under Aurangzeb (1659-1707) as the standard unit of weight.

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189 H. M. Elliot, Elliot, H. M., *Memoirs on the ...Races of the North-Western Provinces of India*, being an amplified edition of the original *Supplementary Glossary, revised by John Beames*, London, II, p.321.

Table 2.2: Cartage on Major Routes

Stages	Via	Approx. distance (miles)	Duration (Days)	Year	Cartage			Reference
					Iman-i-Jahangiri (Rs.)	*Iman-i-Shahjahani* (Rs.)	100 kg/Rs./mile	
Agra-Surat	Burhanpur	745	50	1617	1 ¾ (*hundi*)	-	0.0077	*Letters recd.*VI,pp.237
,,	-	745/680	-	1638	-	2 ¾	0.011 or 0.012	Moreland, *from Akbar* .., p.150
,,	-	,,	-	1639	-	2-2 ½	0.008 or 0.0087 to 0.010 or 0.0109	*EFI,1637-41*, pp.198
Agra-Burhanpur	-	508	-	1622	3	-	0.0195	Ibid.,*1622-23*, pp.90
Agra-Multan	Lahore		35	1635	-	2-2 ¼	0.0094 to 0.0106	Ibid., *1634-36*, 130-31
,,	-		-	1639	-	2-2 ½	0.00946 to 0.0118	Ibid., *1637-41*, pp.135
Agra-Lahore	Delhi	517	22	1639	-	2	0.0115	Ibid.,*1637-41*, pp.135
Agra-Patna	-	544	35	July 1620	1 ¼ - 1 ½	-	0.00762 to 0.0091	Ibid., *1618-21*, pp.191
,,	-		30	Oct. 1620	2	-	0.01219	Ibid.,*1618-21*, pp.199
,,	-		40	Oct.1620	1 5/8	-	0.0099	Ibid., *1618-21*, pp.199
,,			-	May.1621	1 ¾ 1tuka	-		Ibid., *1618-21*, pp.256
,,	-		-	Sept.1621	2 ¼	-	0.0137	Ibid., *1618-21*, pp.268.
,,	-		-	1671		2	0.0109	Marshall, pp.425.
Masulipatnam-Agra	Burhanpur	831	-	1620s	1 ½ - 1 ¾		0.0059	*DEI*, p. 342.
,,	,,	,,	-	1627	2 ½		0.00998	Ibid.,p. 342.

It is clear from Table 2.2, that, cartage between Patna and Agra, generally was not very high, but in the rainy season the English factors had to pay a high rate partly due to the impassable roads and partly for speedy transportation. At the same time, from a letter of October 1620, it is also clear that, the transporters were compelled to perform the journey in the time agreed upon; otherwise a certain amount was deducted on the final payment. In 1639 the English factors tried to send their goods from Agra via Lahore and Multan to Lahri Bander, the port of Thatta, but realised that it cost them as much as the transportation through Surat.[190] They found that the way through Ahmadabad was the cheapest one.[191] In general the usual cost of transit was not very high, and it was high only when the carts were more in demand on occasions such as the emperor or his governor or any noble of high rank needed the carts for his camp or due to the impassable roads after the rains. During the famine in Gujarat, in 1630-32, the English factors had to pay five times the rate of the former years amounting to no less than 30 or 40 percent more of the prime cost of the goods themselves.[192] In 1622 the usual cartage between Agra and Burhanpur was Rs.2 per maund; however the English factors had to pay Rs.3 per maund or Rs.0.0195 for 100 kg weight for a mile, perhaps due to the shortage of carts or problem of safety on the roads owing to the ongoing war in the

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190 *EFI, 1634-36,* pp. 130-31; 1637-41, pp. 135, 198.

191 Ibid., *1637-41,* p. 275.

192 Ibid., *1630-33,* pp.145-46.

Deccans.[193] In 1627 the Dutch factor Vapour, at Agra, complained to Batavia, that, due to the arrival of the local merchant with carts, numbering between 300 and 800, from Masulipatnam, with spices, the cartage had increased from Rs.1 ½ -1 ¾ to Rs.2 ½ on that route.[194] The 'Adhowiyas' who used to take the contract for transport, agreed in 1633, to take Rs.45 for each cart between Agra and Ahmadabad, the charge covering the transit dues which the carters were to settle.[195] For the travellers, according to Tavernier, a cart cost in hire about a rupee for a day's journey, throughout India, and travellers had to pay from 40 to 45 rupees for a journey of thirty-five or forty days, from Surat to Agra, and also from Surat to Golkonda nearly the same distance.[196]

The loads carried by these carts varied in the different regions of Mughal India. In 1616, the English ambassador Sir Thomas Roe wrote in a letter that a cart could carry a load equivalent to three camel's load;[197] and the load carried by a camel varied from 225.375 kg to 271.26 kg. Thus a cart could carry between 676.125 kg and 813.78 kg.[198] In 1621 English factors at Patna tried to send their merchandise to Agra, loading a ton (1000

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193 Ibid., *1622-23*, p. 90.

194 *DFI, 1624-27*, p.342.

195 Mundy, II, p. 278.

196 Tavernier, I, p. 37.

197 *Letters recd*, Vol .IV, p. 252

198 Ibid., Vol. VI, pp.237-8. In 1617, the English factors made three types of bales to be loaded on the camels weighing 3 ¾ and 4 ½ maunds and on each camel two bales of such types were loaded, it means that the weight to be loaded on camels varied from 7½ to 9 maunds (a *man-i-Jahangir* = 30.14 kg).

kg.) on each cart, but the carters off loaded the goods just outside Patna, finding the loads too heavy.[199] However in 1671 Marshall says that from Patna to Agra, a cart drawn by 6 oxen could convey 40 *man-i-Shahjahani,* i.e.1339 kg.[200] But Buchanan, writing about Bihar in 1809, gave the loads carried by the carts, mostly drawn by a pair of oxen, which varied from seven to fifteen maunds i.e. from 300 to 560 kg.[201]

As far the speed of the cart is concerned, I have tried to arrange some of the information from the European sources, on the pace of carts in form of Table-2.3.[202] For the distance between the places, I have mostly relied upon '*Memoir of a Map of Hindoostan or the Mogul Empire,* drawn up by James Rennel.

Table 2.3

Average Distance Covered by Carts on Major Routes.

Stages	Via	Total Days Spent	Approx. Distance (mile)	Daily Average (mile)	Years	Reference
Agra-Surat	Burhanpur	50	745	14.9	1617	*Letters recd.* VI, p.238
,,	,,	47	,,	15.85	1630/1	Mundy, II, pp. 39-65.
,,	Ahmadabad	73	680	9.31	1632/3	Mundy, II, pp. 225-76.
,,	,,	35-40	,,	17-19.42	1640-67	Tavernier, I, p. 73.

199 Letter of October, 6, 1620, *Factory Records*, Patna, Vol. I.; Quoted in R. C. Temple, ed. *Travels of Peter Mundy*, Appendix-D, p. 367. In *EFI* (*1618-21*, p. 268) edited by W. Foster, there is no mention of the quantity of load.

200 Marshall, p. 425.

201 Buchanan, in Martin, *Eastern India,* Vol., I, p.387; Vol. II, 1017; Vol., III, p.319.

202 However Deloch, I, p. 285, has given a table for the pace on routes, but has not indicated the means of transport utilized and gives a general view of the days spent on the roads.

Agra-Patna	-	30-40	544	13.6-18.13	1620-21	*EFI, 1618-21*, p. 191, 199.
Agra-Lahor	Delhi	24	517	21.54	1611	Finch, *Early Travels*, p. 155.
,,	,,	22	,,	23.5	1639	*EFI, 1637-41*, pp. 134
Agra-Multan	Lahore	35	631	18.02	1639	*EFI, 1637-41*, p. 135.
Lahor-Multan	-	11	114	10.36	1639	*EFI, 1637-41*, p. 135.

From Table 2.3, it is clear that, in 1617, carts completed journey from Agra to Surat, within 50 days.[203] In 1632-33, Mundy covered an approximate distance of 680 miles via Ahmadabad,[204] with a mixed caravan of camels and carts within 73 days (excluding the halt in Ahmadabad).[205] The normal time spent on this route by the traveller was 35-40 days.[206] The journey via Burhanpur, an approximate distance of 745 miles,[207] was generally covered within 40 days. In 1613, Withington covered this distance in 37 days only,[208] but Mundy in 1631, travelling with a caravan took 47 days.[209] According to Tavernier, the distance of 415 cos (*kos*), via Ahmadabad, could be covered on the average at 13 cos (21.3 miles) per

203 *Letters Recd.*, VI, p. 238.

204 J. Rennell, *Memoir of a Map of Hindoostan or the Mogul Empire*, London, 1792, p. 318. (From Agra to Surat via Ahmadabad, was 680 British Miles)

205 Mundy, II, pp. 225-76. Mundy accompanied Baqir Khan, who was going to Ahmadabad with his army, but faced much trouble in following Baqir Khan and quelling the continuous quarrel between the carters and the camelmen.

206 Tavernier, I, p. 73.

207 J. Rennell, p. 318, [From Agra to Burhanpur was a distance of 508 British Miles; and from Burhanpur to Surat was 237 miles, (Mundy, II, p. 66), thus from Agra to Surat was a distance of 745 miles.

208 Withington in *Early Travels*, p. 222.

209 Mundy, II, pp. 39-65.

day.[210] On the route of Agra and Patna, an approximate distance of 544 miles,[211] generally 30-35 and at most 40 days were spent.[212] The distance of about 517 miles on the Agra-Lahore route was generally covered in 20-22 days,[213] and Finch, in 1611, with carts covered this distance in 24 days.[214] Table-2.3 shows that, the average distance covered in a day, by the carts varied from about 9.31 miles to 23.5 miles. However, the average distance covered in a day was the maximum on Agra-Lahore route, perhaps due to the good condition of the Imperial highway here.[215] In 1623, Della Valle, who travelled with a *caphila*, from Ahmadabad to Surat, which consisted of above a hundred 'coaches', besides foot-men and horse-men, and great laden wagons, reports that the *caphila* "set forth three hours before day and staging not to rest anywhere, according to custom of the East (which is to make but one bout of day's journey), having travelled fifteen cos."[216]

It is not very clear as to who owned the carts, and who plied these carts for hire. The European accounts generally associated Jats with the carts;[217] although, earlier in 1527, Babur had blamed the Jats and Gujars for

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210 Tavernier, I, pp.72-73. As approximate distance between Agra and Surat via Ahmadabad is 680 miles, an average *kos* of Tavernier will equal to 1.63855 miles thus average distance covered in a day was 21.3 mile.

211 J. Rennell, p. 318. (Distance from Agra to Patna put at 544 miles.)

212 *EFI.1618-21*, pp.191, 199.

213 *Early Travels*, p. 244. Rennell put distance from Agra to Lahore at 517 miles (Rennel, *Memoir* , p. 318)

214 Ibid., p 155.

215 Ibid., p. 244.

216 Della Valle, I, p. 93

217 Mundy, II, pp. 257, 261, etc.; *EFI, 1622-23,* p. 90.

theft and plundering.[218] We have some information about certain transporters called Adhowiyas, both in the Persian and European sources.[219] Sir R. C. Temple says in a footnote of *Travels of Peter Mundy* that this term perhaps has been derived from the word *ada*, which means payments.[220] *Mirat-i-Ahmadi* only calls them 'persons who plied carts for hire'.[221] Only Mundy wrote about these *'adowyaes'* in some detail. These contract transporters generally used to give their carts on hire on two alternative terms. Either they hired out their carts; or they also took the responsibility of security on the routes in which case their charges were, of course, higher.[222] It is evident from a letter of an English Factor that the *adhowiyas* also used to give oxen for hire.[223] For shorter journeys, according to inquiries of 1880-85 into the conditions of lower classes in U.P. revealed, the farmers used to give their carts on hire in the off-season.[224]

Ox-carts were also widely used by the Mughal administration. The *A'in-i Akbari* reports that, there were 200 imperial carts, set aside for the

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218 *Baburnama*, transl. by A. S. Beveridge, reprint. Delhi, 2006, p. 454.

219 *Mirat*, I, p.261; English factors mentioned them at various places (*EFI, 1618-21*, pp. 129, 182;*1622-23*, pp. 63, 124, 173, 187, 192, 230, 231, 290, 322-23); Mundy, II, pp. 278, 291.

220 Mundy, II, p. 278.

221 *Mirat*, I, p. 261.

222 Mundy, II, p. 291.

223 *E F I, 1622-23*, p. 124.

224 *Report of the Indian Famine Commission, 1880-85,* Part II, reprint New Delhi, 1989, p. 99. 'Almost every cultivator of any wealth keeps a cart, in which he yokes his plough bullocks...; few village of 30 or 40 houses but will contain 10 or 12 carts....... whenever a demand arises an immense number of these agricultural carts will turn out on the road, especially in the season when the field work is scanty.'

transport of building materials. (See Plate-VIII). Arif Qandahari for the same period, noted that thousands of carts, daily brought red sand stone to Agra for construction of the Agra fort by Akbar.[225] Mundy also saw not less than 500 carts involved in the transportation of marbles for the King at Agra.[226] Similarly Tavernier saw 300 carts involved in carrying marble for the construction of Tomb and Mosque at Aurangabad.[227] Tavernier also reports that carts were forced to carry lime from Broach to Agra and Delhi, and in lieu of that service they were exempted from transit dues.[228] Carts were also used in the imperial kitchen, to bring fuel, water, ice etc. and 600 carts were entrusted to bring 150,000 *mans* of fuel in the space of ten months.[229] Carts were also used for hunting purpose. (See Plates- XI & XII).

Ox-carts carried much of the long-distance trade in India. Besides their slow pace, the rainy season precluded their use on certain routes.[230] From Surat to Agra, the Burhanpur route was closed during the four month in the rain;[231] and after the rainy season, the cart which passed these roads

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225 Arif Qandahari, p.145.

226 Mundy, II, p. 241.

227 Tavernier, I, p.119.

228 Ibid., I, p. 35.

229 *A'in*, I, p. 103.

230 *EFI, 1618-21*, pp. 258, 270, 283; Marshall, p. 425; Mundy, shared his experience in these words 'It being tyme of Raines....wee arrived at Puttna....not meeting all the way one laden carte either going or comeing from thence, it being not then the tyme of Travell for Laden carts'(II, pp. 143-4). See also at pp. 111 and 125-6 for the troubles faced by him.

231 Tavernier, I, p.31.

first had to face many hardships, as it had to cut its way through the mud for making the way for other carts.[232] On the other hand, it was also not easy to travel in the desert before the rain.[233]Besides the driver (*Bailwan*), it was necessary to have extra persons to accompany the carts, due to bad condition of the road. (See Plate- IX). Tavernier noted that each cart was accompanied by four guards, two of them walking on each side of the cart, over which two ropes were passed and the four ends were held by the guards, so that if the carts happened to tilt on one side, the two guards who were on the opposite side would pull at the ropes tight to prevent the cart from turning over.[234] Thevenot tells the same precautions being taken, except that he used the term 'peons' for 'guards'.[235]

6: HUMAN PORTERS

In the hilly and mountainous region of Mughal India, besides other means of transport, men also played very important role in carrying merchandise, baggage etc. Abu'l Fazl in his *A'in* mentions the utilization of human porters for carrying goods in the northern mountains.[236]European travellers also noted importance of the porters in that region. In c.1626, Pelseart noted for Kashmir that "... pack animals cannot cross the

232 *EFI, 1665-67*, p. 157.

233 Mundy, II, p. 298.

234 Tavernier, I, p. 35.

235 Thevenot, pp.72-73.

236 *A'in*, II, pp. 78-79.

mountains, and practically everything must be carried on men's heads."[237] Tavernier saw in the Himalayan region that the women used to carry the travellers on their back.[238] But the most important evidence for the utilization of the porters in the Himalayan region came from the pen of Bernier. While describing the visit of emperor Aurangzeb to Kashmir, he say "Porters supply the place of camels; and you may judge of the immense number that will be employed if what they tell me be true, that the King alone has no fewer than six thousand. I must myself have three, although I left my large tent and a considerable quantity of luggage at Lahore: every person did the same, not excepting the *Omrahs* and the King himself; and yet it is calculated that there are at least fifteen thousand porters already collected in Bember; some sent by the Governor of Kachemire and by the neighbouring Rajas, and others who are come voluntarily in the expectation of earning a little money. A royal ordinance fixes their pay at ten crowns for every hundred pounds weight. It is computed that thirty thousand will be employed; an enormous number, when it is considered that the King and *Omrahs* have been sending forward baggage, and the tradespeople articles of every sort, for the last month". [239](See Plate- XIV, which depicts, loads being carried by porters in Kashmir).[240]

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237 Pelsaert, p.35.

238 Tavernier, II, pp. 206-7.

239 Bernier, p. 392.

240 D. D. Kosambi, '*The Culture and Civilization of Ancient India in Historical Outline*', Delhi, 1972, Plate No. 21.

Monserrate in 1580 observed that the Afghans carried their burden on their back.[241]

In the Deccan and South India porters were hired for carrying burden more than the beast of burden. Della Valle found in the Western Ghat that baggages were transported more frequently upon men's shoulders than upon beast's back.[242] In the eighth decade of seventeenth century, Abbe Carre, who himself hired porters during his travel from Goa to Bijapur, seems to have observed them very carefully. He found the roads crowded with the professional porters who had no other occupation other than carrying heavy burden on difficult mountain roads, which a person without load could scarcely surmount.[243]

In the plain area such as Gujarat, porters were also present as Jahangir himself observed the presence of walls for the porters, who utilised these walls to ease their burdens in the way. Jahangir was so impressed with those walls that, he ordered to build such walls in all over the empire.[244].

As far as load carried by a porter is concerned, generally it was not fixed, as has been observed by Abbe Carre in the Deccan.[245] Pelseart found the Kashmiris were able to carry twice the load carried by a Hindustani.[246]

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241 Monserrate, p. 149.

242 Della Valle, II, p. 292.

243 Abbe Carre, I, pp. 226-7.

244 *Tuzuk*, p.208.

245 Abbe Carre, I, p. 226.

246 Pelsaert, p. 34. By Hindustani perhaps he means people from the plain.

Usually they were paid for the full trip. Aurangzeb, during his visit to Kashmir ordered to pay them at the rate of ten crowns for every hundred pounds weight.[247] In Deccan, Abbe Carre found that they were paid 2 ½ ecus or Rs.5 a load, however the great weight, for a trip of 25-30 days.[248] The three women, who used to carry men as burden in turn, in the Himalayan region, were paid 2 rupees each for a journey of ten days.[249]

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[247] Bernier, pp. 392.

[248] Abbe Carre, I, pp. 226. One ecu was equal to two rupees or 4*s*.6*d*. (Tavernier, I, pp. 22, 305, 329; Bernier, p.200)

[249] Tavernier, II, pp. 206.

APPENDIX – 2 A

Besides the emperor, the high officials of the empire, holding *mansab* had the obligation of keeping certain fixed number of carts, such as, according to *A'in*, a *mansabdar* of 10,000, had to keep 320 carts and that of 20, had to keep one cart.[250] *A'in* has detailed information regarding this obligation in the salary-schedule of the *mansabdars*, since the number of holders of various ranks can at least be worked out for the 40th year of Akbar's reign.[251] We can get the number of horses, elephants, beasts of burden and carts to be maintained by the *mansabdar* at least for that year (see Table-2.1). In this table the number of camels and mules has been given in the form of *qatars*, i.e. in files and according to Abu'l Fazl, each *qatar* of camels or mules was consisting five camels or mules respectively.[252] I have calculated on the following formula. I calculated it on the following formula.

No. of camels or mules kept by the specific *mansab* holders = No. of holders of that *mansab* x No. of *qatars* of camels or mules to be kept by the specific *mansab* holder.

For example,

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[250] *A'in*, I, pp. 124-131.

[251] Shireen Moosvi, *EME*, p. 212 and table 9.2 on p. 214. However this obligation continued in the reign of other Mughal emperors also as it is confirmed from besides other regulations, from the regulation of *khurak-i dawwab,* but we do not find any other information in the form of table further in the reign of Jahangir, Shahjahan and Aurangzeb.

[252] *A'in*, I, pp. 99, 103.

number of camels kept by the *mansab* holders of 10.000 = 1 x 160 x 5 = 800, where 1 is the number of holder of that *mansab*, 160 is the number of *qatars* to be kept by that holder and 5 is the number of camels in a *qatar*.

And again to get number of carts kept by the holders of the *mansab*, I applied the following formula.

No. of carts kept by the specific *mansab* holders = No. of holders of that *mansab* x No. of carts to be kept by the specific *mansab* holder.

For example, number of carts kept by *mansab* holders of 10,000 =1 x 320 =320, where 1 is the actual number of holder of that *mansab* and 320 is the number of carts to be kept by that holder.

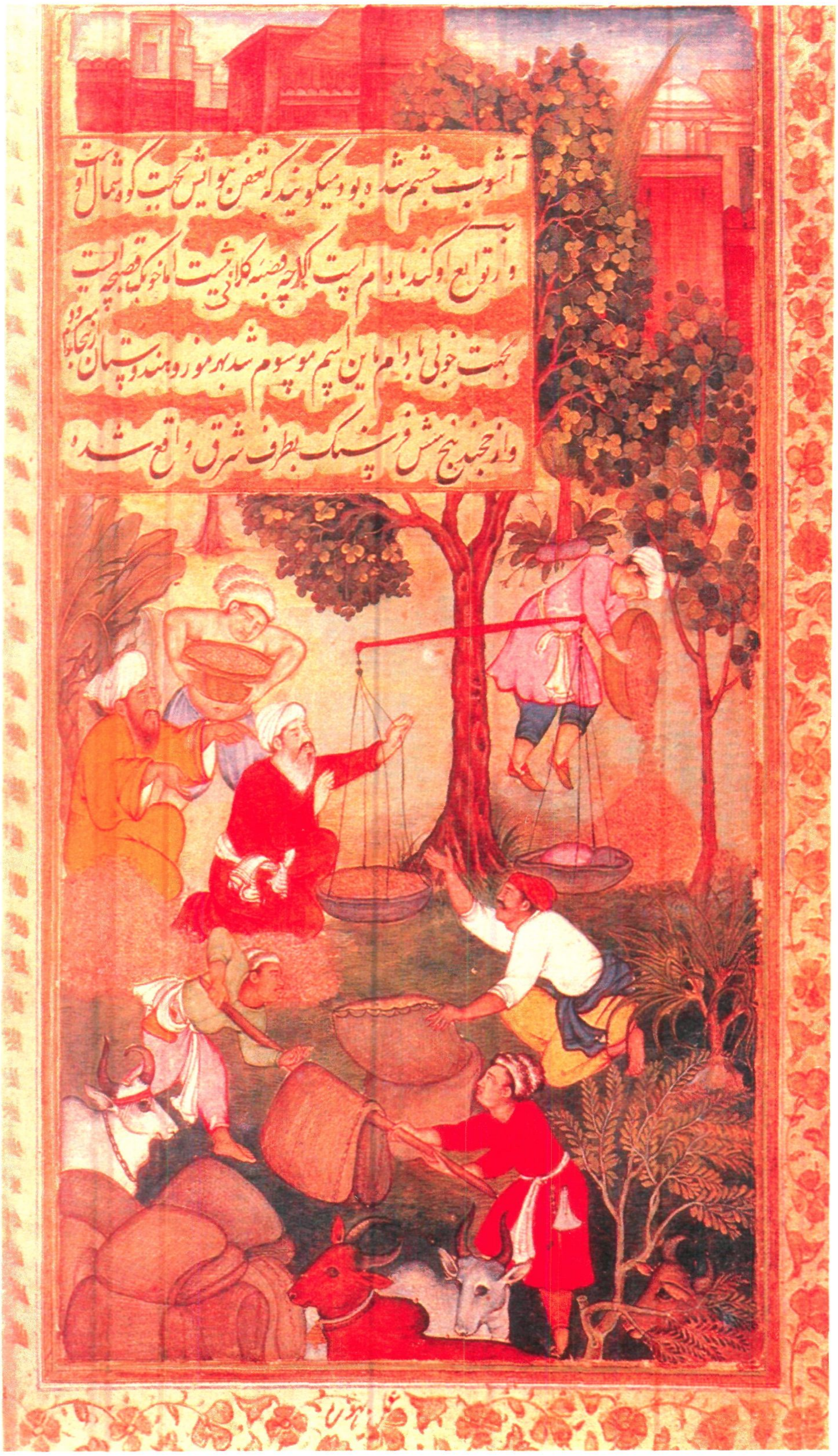
Table-2.4: Number of camels, mules and carts to be kept by the *mansabdars* in the 40th regnal year of Akbar.

Sl. No.	*mansabdars* of	Actual no. of Holders	*qatars* of camel	No. of camels	*qatars* of mules	No. of mules	Carts	No. of carts
1	10,000	1	160	800	40	200	320	320
2	8,000	1	130	650	34	170	260	260
3	7,000	1	110	550	27	135	220	220
4	5,000	9	80	3600	20	900	160	1440
5	4500	1	72 3/5	363	18 3/5	93	145	145
6	4,000	3	65	975	17	255	130	390
7	3,500	19	57 3/5	5472	15 3/5	1482	115	2185
8	3,000	4	50	1000	14	280	100	400
9	2,500	3	40	600	10	150	80	240
10	2.000	9	30	1350	7	315	60	540
11	1,500	7	24	840	5	175	50	350
12	1,000	16	21	1680	4 3/5	368	42	672
13	900	12	20	1200	4	240	40	480
14	800	2	17 3/5	176	3 2/5	34	34	68
15	700	16	15 2/5	1232	3	240	27	432
16	600	4	13	260	2 2/5	48	21	84
17	500	31	10	1550	2	310	15	465
18	400	17	5	425	-		12	204
19	350	19	4 2/5	418	-		11	209
20	300	32	4	640	-		10	320
21	250	12	3 2/5	204	-		8	96
22	200	81	3	1215	-		7	567
23	150	53	2	530	-		6	318
24	120	1	2 1/5	11	-		5	5
25	100	250	2	2500	-		5	1250

26	80	91	2	910	-		3	273
27	60	204	1 2/5	1428	-		2	408
28	50	168	1 2/5	1176	-		2	336
29	40	260	1 2/5	1820	-		1	260
30	30	39	1 2/5	273	-		1	39
31	20	250	1 1/5	1500	-		1	250
32	10	224	-		-		-	

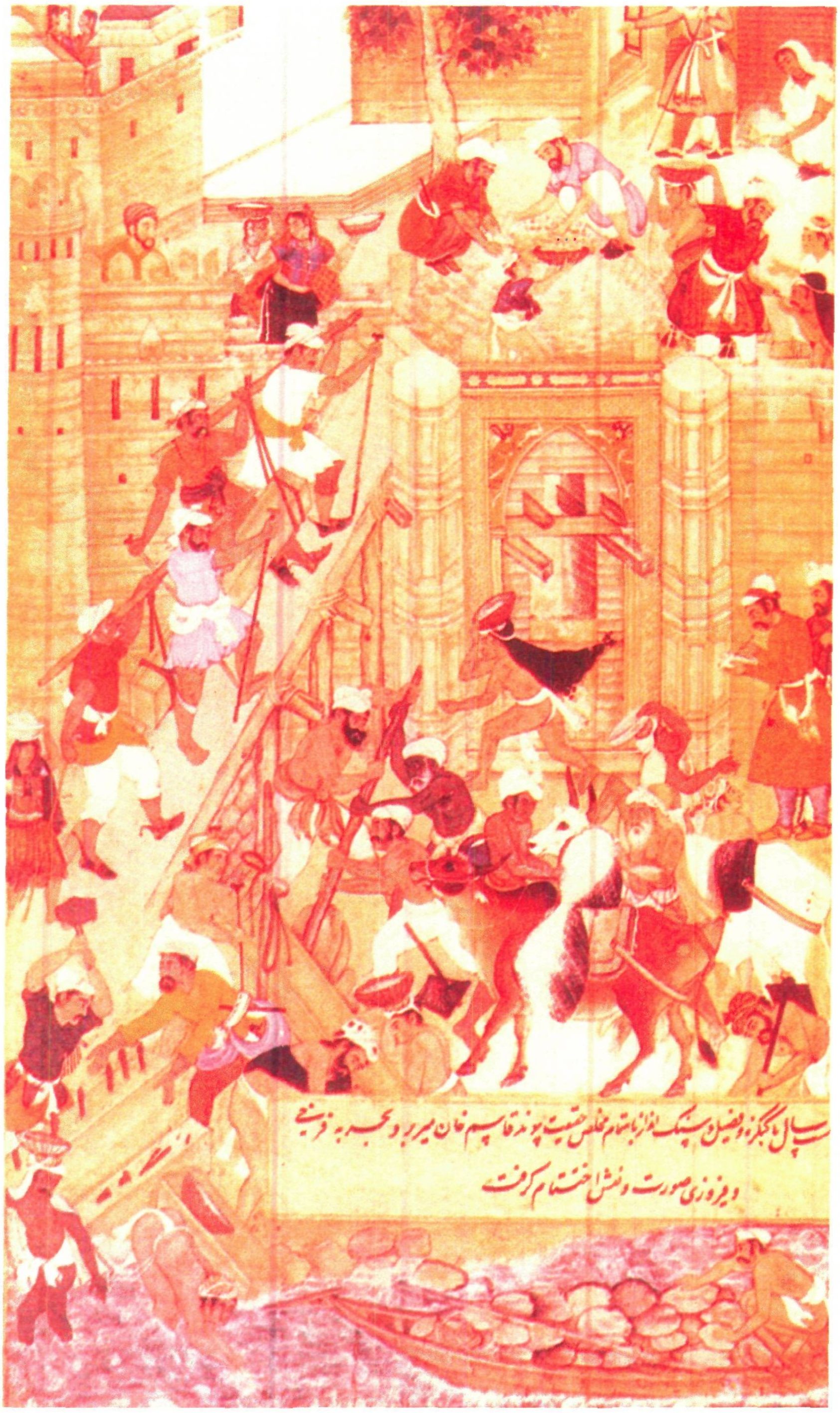
Total = 35348 Total = 5395 Total = 13226

PLATE- II



Packs being prepared for oxen, *Baburnama*, Illustated at Akbar's atelier, *Miniatures of Baburnamah*, Plate No. 1.

PLATE- III



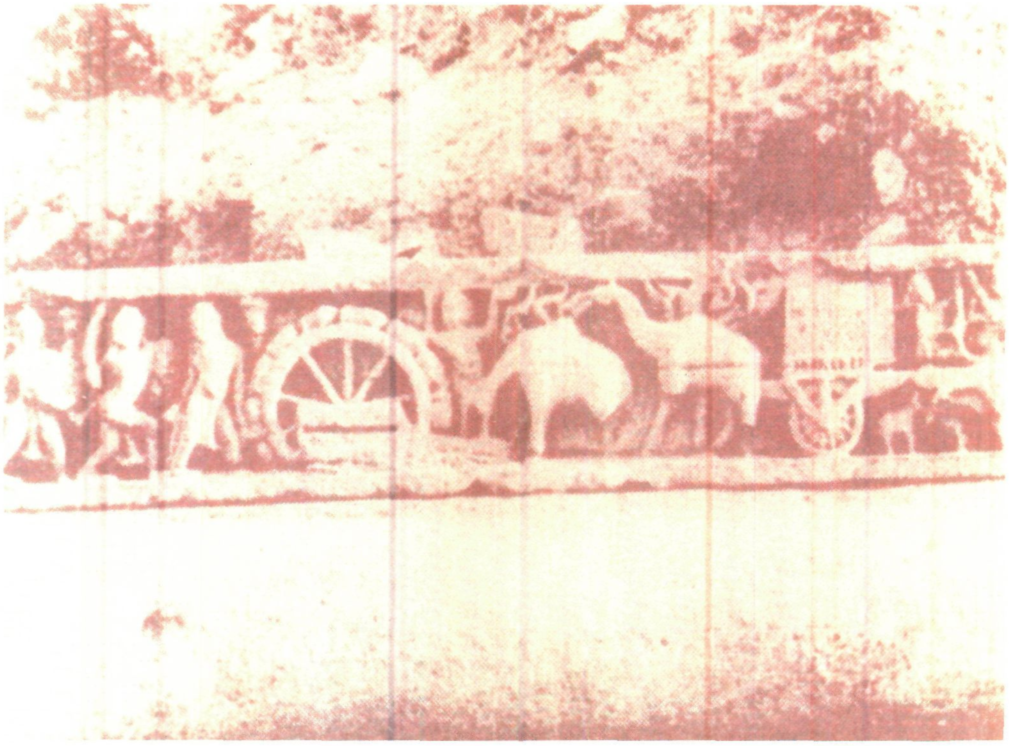
Pack oxen bringing building material for construction of Agra fort *Akbarnama*, c. 1600-05 A.D., Victoria and Albert Museum, London, I. S., 46/117.

PLATE- IV



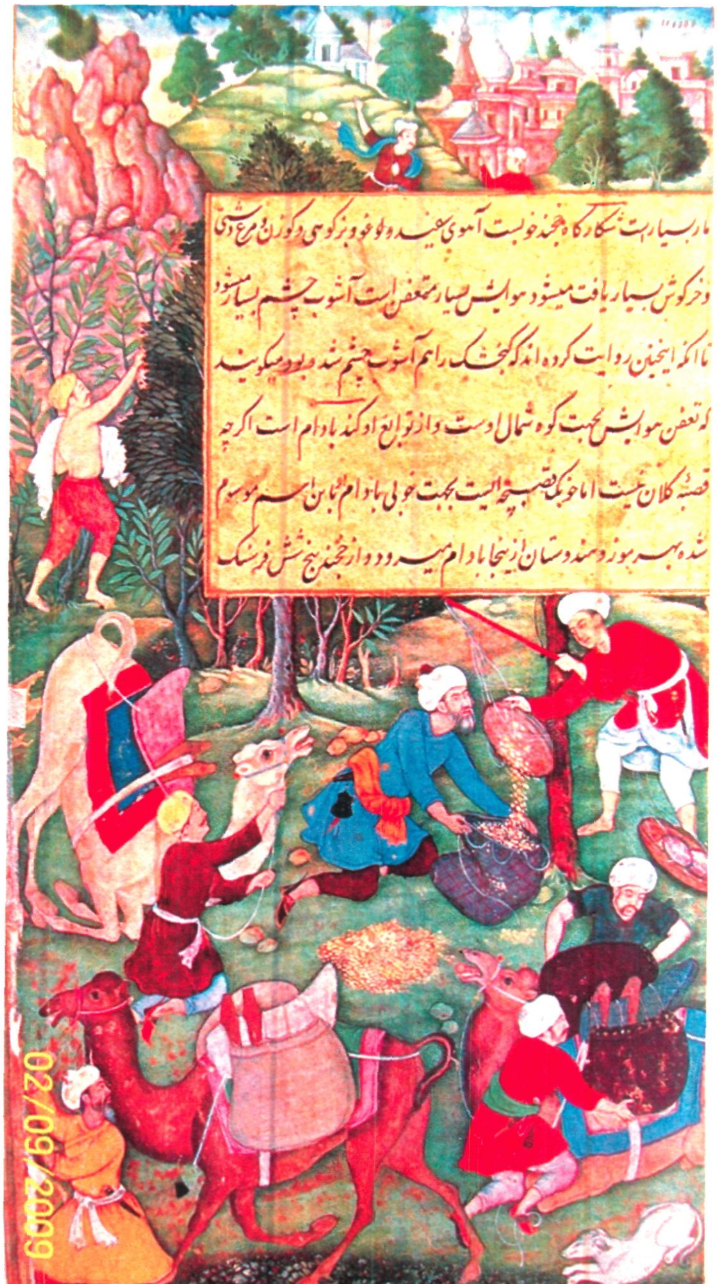
Pack oxen carrying building material for construction of buildings at Fatehpur Sikri. Illustration from *Akbarnama*, c. 1600 -05 A.D., Victoria and Albert Museum, London, I. S., 2 -1896 91 /117.

PLATE- V



A painting depicting one-humped camel. Detail from a relief on the North side of topmost terrace of shrine at Mandor (c. 1200 A.D.).

PLATE VI



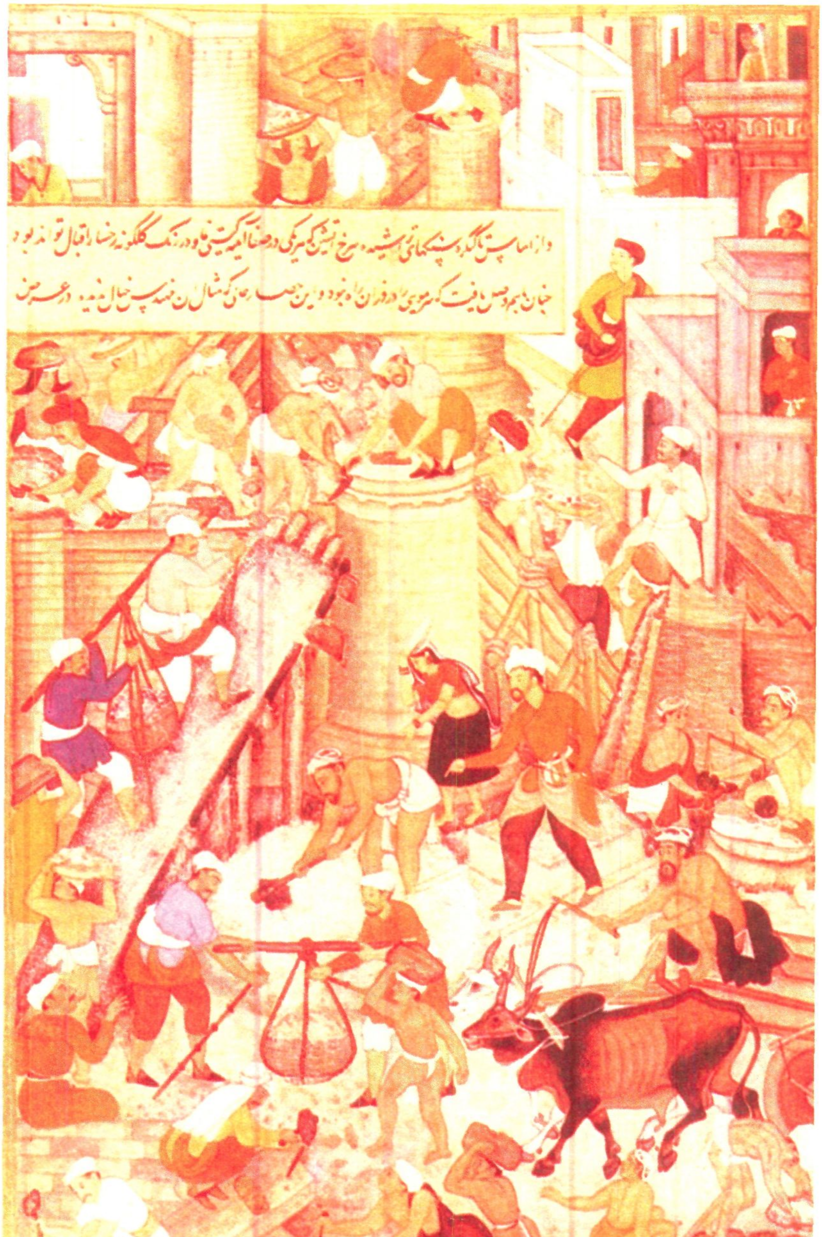
A painting from *Baburnama*. Packs being prepared for and loaded on camels. Reproduced from Paintings of *Baburnama*, M. S. Randhwa, National Museum, New Delhi, 1983, Plate No., 1.

PLATE–VII



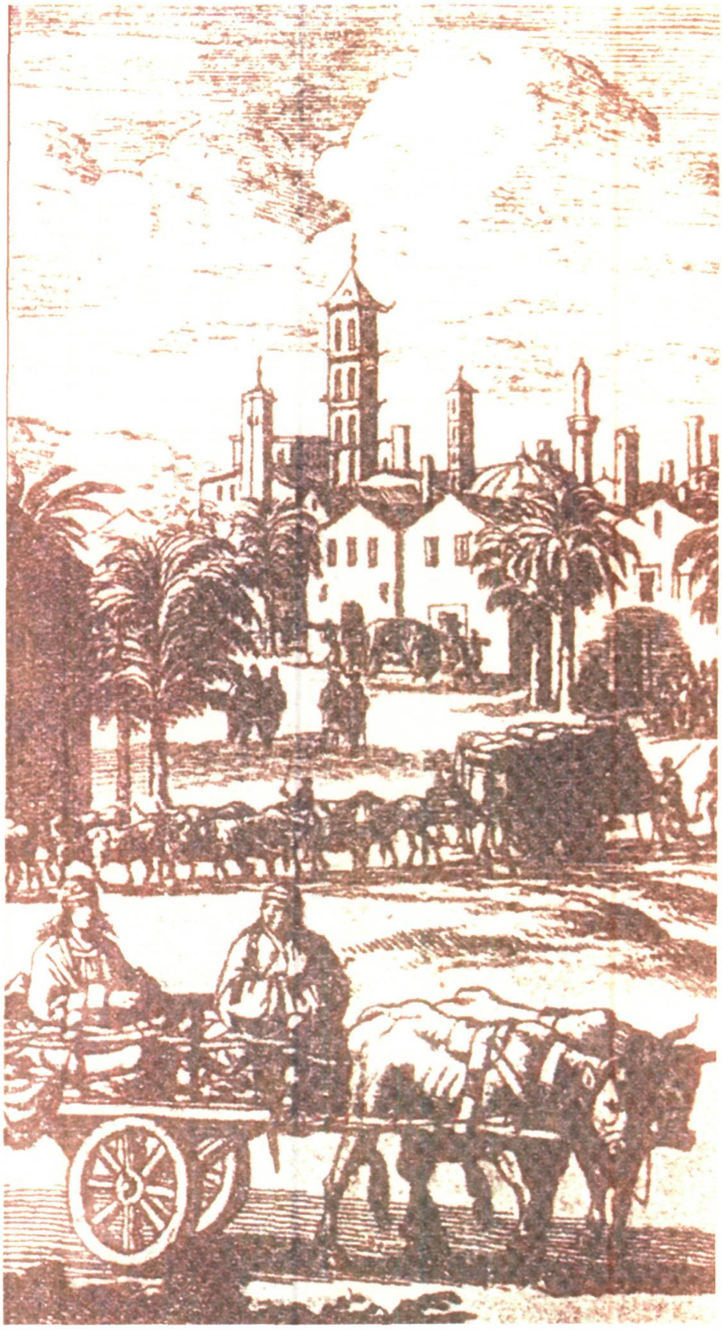
Ass at washerman's home. (C. 1600 A. D.) *Razmnama*, British Museum, London, Or. 12076, f. 48a.

PLATE – VIII



Oxen cart bringing building material for construction of Agra fort *Akbarnama*, c. 1600-05 A.D., Victoria and Albert Museum, London, I. S., 46/117.

PLATE – IX



A painting depicting besides other carts, a loaded cart drawn by a series of oxen. Reproduced from '*Indian Travels of Thevenot and Careri*, New Delhi, 1949, p. 76.

PLATE – X

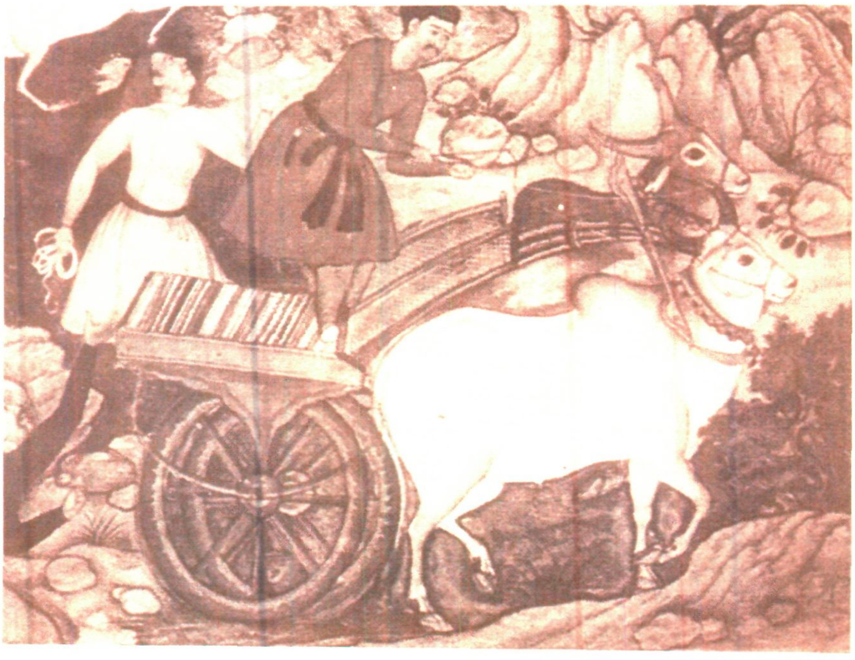


A bullock-cart with solid wheels carrying load, *Razmnama*, c.1582-84, Sawai Man Singh Museum, Jaipur, Plate 76.

PLATES –XI & XII



A carpet painting depicting cart. c. 1590-1600 A.D., Museum of Fine Arts, Boston. Reproduced from 'S. P. Verma, *'Flora and Fauna in Mughal Art'*, *Mumbai*, 1999, pp. 64, Plate No. VII.



A Mughal painting from *Akbarnama* (Victoria & Albert Museum, London).

PLATE -XIII



A light bullock-cart drawn by a pair of oxen yoked to shaft of cart, c. 1590. Sita Ram Sahu Collection, Varanasi.

PLATE – XIV



An illustration from unknown manuscript of about 1600 A. D. showing porters. Reproduced from D.D. Koshambi, *The Culture and Civilization of Ancient India in Historical Outline* , Delhi, 1972, Plate No. 21.

CHAPTER 3

MEANS OF WATER TRANSPORT

Mughal India had considerable coastal area and many navigable rivers, therefore coastal and river navigation played important role in carrying both the goods of bulk as well as high-grade products.

1: River Navigation

Mughal India, being a vast country had several rivers. However all the rivers were not navigable for commercial purposes, but those rivers which were navigable supplemented very well land transport in their respective areas especially in carrying goods of bulk.[1]

In Mughal India, the Ganga, with Jumna, and other rivers formed the biggest navigation system.[2] This river system carried very brisk trade between the capital city of Agra and Bengal. Ralph Fitch, in 1583, from Agra went down the Jumna, to Satgaon in Bengal, in company of 180 boats laden with, salt, opium, *hing* (asafoetida), lead, carpets, and diverse other commodities.[3] William Finch (c. 1608-11) observed that Jumna river at Agra was broader than Thames at London, and noted the presence of many boats, some of which were of 100 'tunns'.[4] John Jourdian in 1612 found at Agra that in the Jumna, in great barges of four and five hundred 'tonns'

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1 For maps and descriptions of various rivers in Mughal India, see Irfan Habib, *Atlas*.

2 The Ganga river system has been dealt in detail in chapter IV, section: Navigable Rivers.

3 Fitch in *Early Travels*, p. 18.

4 Finch in *Early Travels*, p. 185.

apiece, made according to the manner, in which the merchants had their tents sett up as in a field, yearly above 10,000 'tonns' of salt was carried from Agra to Bengal.[5] Peter Mundy, in 1632, during his journey from Agra to Patna, also found at Etawah, 'Great Lighters'. He further noted "And in the river are many great lighters [barges], such as are in Agra, from whence this place theie transporte to and again [to and fro], and from hence down to the River Jemina [Jamna], into Ganges, and soe to Puttana and farther into Bengala, as also from Agra, Their Cheifest lading being salt, which is hereabouts digged out of the mountaines. They are 3 or 400 Tonns a peece, both ends extraordinarie high."[6] However from Agra to Patna, as we have seen in the (Chapter II), trade was carried on mainly by land routes, but from Patna to Bengal, the trade was mainly carried on by the rivers.[7] In 1620, English factors noted at Patna that the Portuguese from their two ports Hugli and Pipily in the bottom of Bengal, from where they had yearly shipping with Malacca and Cochin, used to come with their frigates to Patna, usually bringing tin, spices, and China wares and used to return with ambertye calicoes, carpets and all sorts of thine cloth, which they die into reds purposely for southwards sale.[8] Thomas Bowrey in the eighth decade

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5 Jourdain, p. 162.

6 Peter Mundy, II, pp. 87-88.

7 Manrique, II, pp. 120, 145. In early fifth decade, Manrique during his journey from Bengal towards Lahore and then Europe, in accordance of the opinions he had heard from the men familiar with those routes, decided to hire a boat as far as the City of Patna (p.120). Tavernier also left Patna in a boat to be descended in Dacca (I, p.101).

8 *EFI, 1618-21*, pp. 213-4.

of seventeenth century noted at Patna that all the Saltpetre was sent from hence to Hugli in great flat bottomed vessels of an exceeding strength, called 'Patellas' and each of them was capable to bring down 4, 5, 6000 'Bengala maunds'. And he further noted that many 'Patellas' come down yearly laden with wheat and other grains, and go up laden with Salt and bees wax.[9] Hamilton also described the trade of saltpetre as "and there are Vessels that bring Salt-petre from *Patana*, above 50 Yards long, and 5 broad, and two and half deep, and can carry above 200 Tuns. They come down in the Month of *October*, before the Stream of the River, but are obliged to track them up again, with Strength of Hand, about 1000 Miles."[10]

The other most important river navigation system was the Indus river system, which comprised besides others, of five important rivers namely Indus, Ravi, Jhelum (Bihat), Sutlej and Chenab.[11] These rivers served as an important means of transport in their region. In late sixteenth century, Abul Fazl noted that in the *sarkar* of Thatta, there were 40000 big and small boats for the navigation.[12] In early seventeenth century William Finch noted that "(from Lahore)...Ravee, a goodly river which falleth into Indus, downe which go many boats, of sixtie tunne or upwards, for Tatta in Sind, after the fall of raine, being a journey of some fortie dayes alongst by Multan,

9 Bowrey, p. 225.

10 Hamilton, II, pp.20-21.

11 For details of this river system see chapter IV, section: Navigable Rivers

12 *A'in*, II, p. 165.

Seetpore, Bucher [Bukkur], Rauree [Rohri] etc."[13] In c.1626, Pelsaert noted that the rivers Ravi, passing through Lahore, and Behat/Jhelum and Indus passing the cities of Multan, Bhakar, etc. carried a large trade in shallow-draught vessels to Thatta.[14] He further noted that from Tattah to the port of Lahari Bandar, where all large vessels used to anchor, the goods were brought up in boats.[15] In 1635, English factors at Thatta noted that from Sehwan, 60 'course' by land, indigo, baftas, opium, butter and oil, etc. were brought to Thatta by boats.[16]In March 1639, Henry Bornford noted that "from Lahore to Tutta the usual transport of goods is down the river in the flatt bottom boates of a thousand and 2000 maens;...." He also noted that "from Multan the river is navigable at all times; but from Lahoare in the begining [of] March till the cool tyme enter in October."[17]This river system served through out our period as main means of transport in this region. In the late seventeenth century, Sujan Rai perhaps copying from *A'in* of Abul Fazl, noted that the main means of transport in the *suba* of Thatta was boat

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13 Finch in *Early Travels*, p. 161.

14 Pelseart, pp. 30-31. He noted that in Multan which commanded the route to Persia by way of Qandahar, the Persian trade was extensive, because the city was conveniently served by three great rivers, the Ravi (which serves Bakkar in Sind, and also Lahore), the Behat (Jhelum) and the Sind (Indus), became productive by largely using the shallow-draught vessels for carrying merchandise. He especially mentions sugar as a product of Multan which was carried in large shallow-draught vessels to Thatta and Lahore also in large quantities.

15 Ibid. pp.31-32.

16 *EFI, 1634-36*, p. 129. They also noted that from Nasarpur, about 30 'course' distant from Thatta and situated on Indus river, 'comeing downe with the current, charges of transportacion must be very little' (ibid., p. 128).

17 *EFI, 1637-41, p. 137.*

and there were 40,000 big and small boats in that *suba*. Merchants from Multan and Bhakkar used to bring their merchandise to Thatta in boats as it took less time then by the land which was tortuous due to forest and unavailability of drinkable water.[18] In the beginning of eighteenth century, Hamilton also noted about navigation in the Indus river system that "the River Indus is navigable for their Vessels, as high as Casmire,...; and one Branch runs up to Cabul to the Westward, and others to Penjeb, Lahore, Multan, Buckor, and other large provinces and Cities to the Eastward, and all share the Benefits of inland Navigation.'[19]

In Kashmir the carriage of goods was effected by boat besides loads carried by human in the difficult tracts. There boatmen and carpenters droved a thriving trade.[20] There were 5700 boats (*kishti*) and 7400 boatman (*mallah*) at the time of visit of Jahangir in Kashmir.[21] Behat was the river which served navigation in Kashmir. Originating in Vernag, Bihat, entered in the Kashmir valley and passing through Wular Lake, re-entered in the hills at Barahmula. In Kashmir the Bihat river was navigable from Kahnabal to Barahmula.[22]

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18 *A'in*, II, p. 165; Sujan Rai, pp. 59-60. For discussion on Thatta as *suba* or *sarkar*, see Irfan Habib, *Atlas*, p.13.

19 Hamilton, I, pp. 122-3.

20 *A'in*, II, p. 170.

21 *Tuzuk*, p. 298; Iqbalnama, p. 149.

22 *Tuzuk*, p. 294 (Jahangir during his visit to Kashmir through the Pakli, Barahmula route, took boats at Barahmula to reach Srinagar); *Iqbalnama*, pp.141,148; Lahori, I, part ii, p. 22, 24; Lawrence, 18; Irfan Habib, *Atlas*, Map 3B, p.7.

2: COASTAL NAVIGATION

Having vast area surrounded by the ocean, Mughal India had very well developed coastal navigation. This was the coastal navigation which mostly fulfilled the need of all the coastal areas and their hinterland, from Bengal in the east to Gujarat and Sind in the west. Fitch in the 1580s found scarcity of victuals in Cochin, as neither corn nor rice was grown there, and the greatest part used to come from Bengal.[23] In the second decade of seventeenth century Methwold noted about the import to Masulipatam on the Coromandel from Bengal that once a year there used to arrive at Masulipatam a fleet of small vessels, planks sewn together with coir only and no iron in or about them, of burden about twenty 'tunnes' carrying rice, butter, sugar, wax, honey, gum lac, long pepper, calico lawns and divers sorts of cotton-cloth, raw silk, and moga (which was made of bark of a certain tree), and very curious quilts and carpets stitched with those moga. However all these were found in plenty at Masulipatnam, but they used to sell them at moderate profit.[24] In the same decade Schorer noted about the coastal trade of Pulicat with Orissa that "Some ships arrive from the Gingelly Coast or Orissa in February or March each year, laden with rice,

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23 Fitch in *Early Travels*, p.44. Earlier he had noted about export of cotton and cloth of cotton, sugar, and very much opium and other commodities which were carried from Patna to Bengala and India (p.24) and he had also noted the export of great store of cotton cloth and much rice from Sonargaon, situated east of Dacca to all India, Ceilon, Pegu, Malacca, Sumatra, and many other places (28). Here by India, Portuguese possession was usually meant (Irfan Habib, *Agrarian System*, p. 78).

24 *Relations*, p. 40.

butter, and gingelly seed; the return in April or May, laden with salt and some spice." And he further added that "Ships sail every year to the coast of Bengal, Arakan, Pegu, and Tenasserim, carrying a variety of cotton cloths, glass, iron, cotton yarn (red and white), tobacco, and certain shells which are used instead of coins in Bengal and Arakan; they carry also some spice and sandal-wood. The return cargoes consist of rice, butter, oil, ginglly seed, sugar, a variety of woven cloths, some fine embroidered quilts, rubies, sapphires, lac, pitch, benzoin, China root, gold, tin, eagle-wood, sappan-wood, which is used for dyeing red, large jars called Martabans, and a drink called *nipa*. These goods are brought to the whole Coast, as far as Cochin."[25]In c.1626, Pelseart noted that sugar was shipped from Bengal to Gujarat.[26] In 1634, English factor at Masulipatnam, advocating for setting factory in Bengal argued that "First, for the trade 'twixt that and this place in rice, sugar, butter and divers other sorts of provisions and course commodities, which will not only produce a sufficient gaine to cleare the charge of such small vessells as shall be imployed for its transport but also raise an able overplus to quitt the great expence that Your Worships are at yearely in these factoryes of Mesulapatam and Armagon. Secondly, it affordes store of white cloth at

25 Ibid., pp. 54, 59-60.

26 Pelseart, p. 19; Sir Charles Fawcett, *The English Factories in India: New Series*, vol. III, Oxford, 1954, p. 256; Kristof Glamann, *Dutch-Asiatic Trade,1620-1740*, Copenhagen/the Hague, 1958, p. 160 &n; Irfan Habib, *Agrarian System*, p. 78.

cheape rates, such as is sutable for England, Persia, and the Southwards."[27] Further they placed example of the Dutch having vessels of some 80 to 120 'tunnes', which drew little water and carried 13 to 14 guns, used to "trade from port to port all the yeare longe, sometimes buyinge rice and other provisions where they are cheape and transport it to better markets,... and by these meanes they cleare at yeares end all the great charges they are at uppon this coast."[28] Later the English also bought that type of vessels for trading on the coast.[29] Bernier in the sixth decade of seventeenth century considering Bengal as factor behind the pre-eminence ascribed to Egypt as the finest and most fruitful country in the world, noted that "The latter country [*Bengal*] produces rice in such abundance that it supplies not only the neighbouring but remote states. It is carried up the Ganges as far as Patna, and exported by sea to Maslipatam and many other ports on the coast of Koromandel. It is also sent to foreign kingdoms, principally to the island of Ceylon and the Maldives. Bengale abounds likewise in sugar, with which it supplies the kingdoms of Golkonda and the Karnatic, where very little is grown, Arabia and Mesopotamia, through the towns of Moka and Bassora, and even Persia, by way of Bender-Abbasi."[30] Raw silk from Bengal was a

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27 *EFI, 1634-36*, p. 41.

28 Ibid, pp. 42-43.

29 Ibid., pp. 43-44.

30 Bernier, p. 437.

staple commodity all along the coast of Coromandel.[31] Hamilton in early eighteenth century noted about the export of Bengal within India that "...Ophium, long Peper and Ginger and Commodities that the trading Shipping in *India* deals in besides Tobacco, and many Sorts of Piece Goods, that are not merchantable in *Europe*."[32]Malabar received opium chiefly from Bengal. Wheat was also exported from Bengal and Gujarat to the southern Indian ports.[33] Cotton and cotton yarn from Gujarat by coastal navigation was exported to Malabar. Malabar also received large quantity of opium from Gujarat.[34] Gujarat exported tobacco to Thatta and saffron received from Kashmir via Agra to Malabar.[35] Malabar exported rice, pepper, coconuts, coir, palm-sugar, betel-nuts, etc. to Gujarat by sea.[36]

3: TYPE OF VESSELS USED IN NAVIGATION IN MUGHALINDIA

So far as types of vessels are concerned, taking into consideration the water where the vessels were used, we can broadly classify them into three categories. The first vessels used only in the ocean such as junk and other ships (*jahaz*), etc. second type, vessels used both on the ocean and along the

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31 *The Early Annals of the English in Bengal, being the Bengal Public Consultations for the first half of the Eighteenth Century*, vol. I, ed. C.R. Wilson, London, 1895, p. 399.

32 Hamilton, II, p.21.

33 Bhimsen, *Nuskha-i Dilkusha*, Or. 23. ff. 113-114; Hamilton, I, pp.367-68.

34 Linschoten, II, p. 113; van Twist, p. 76; *EFI, 1661-64*, p. 355; *1665-67*, pp. 99-101.

35 *EFI, 1646-50*, p. 60; Pelseart, p. 35; John van Twist, 'A General Description of India', c. 1638, extracts transl. W. H. Moreland, *JIH*, XVI (1937), p. 76.

36 Pelseart, p. 19; van Twist, p. 76; Fryer, I, p. 136.

coast but mostly on the coast such as *ghurab*, *tawry*, *sambuk*, *shibar*, *manchua*, *balloon*, *purgo*, *masula* and other kinds of boats, and the third kind, vessels used for internal navigation i.e in the rivers such as *parao*, *patella*, *jalia* etc.

However it is very difficult to exactly identify the vessels by their name, as due to vastness of the empire it was possible that same name might identify the different vessel and at the same time same type of vessels might be identified by different names.

So far as vessels used on the Ganges river system are concerned, Abul Fazl has noted that in the *suba* of Bengal different kinds of vessels were made according to the purposes such as war, carriage or swift sailing.[37] William Finch in the early seventeenth century found some of the vessels of 100 'tonns'.[38] At the same time John Jourdain found very large barges of 400 or 500 'tonns'. Those were so much large in length and breadth that merchants used to set up their tent as in the field.[39] In the fourth decade of seventeenth century Peter Mundy found 'great lighters' or barges of 3 or 400 'tonns' having both ends extraordinary high. However neither Jourdain nor Peter Mundy named these vessels. Between Patna and Hugli in Bengal, in the eighth decade of seventeenth century, Bowrey found "great flatt bottomed Vessels, of an Exceedinge Strength, which are called Patellas each of them will bringe downe 4, 5, 6000 Bengala maunds. They are built

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37 *A'in*, II, p. 50.

38 Finch in *Early Travels*, p.185.

39 Jourdain, p.162.

very Stronge, by reason of the most impetuous Eddies they meet with in some places, that force them many times Upon one Shoale or Other, soe that, were they not Stronge and very flatt, they wold be in greater peril of wringinge to pieces or turning bottom up."[40] Perhaps Bowrey described the same vessels, which earlier Jourdain and Mundy had described. Hamilton also described the same vessels as "and there are Vessels that bring Salt-petre from *Patana*, above 50 Yards long, and 5 broad, and two and half deep, and can carry above 200 Tuns. They come down in the month of October, before the Stream of the River, but are obliged to track them up again, with Strength of Hand, about 1000 Miles."[41] Bowrey also informs us about a vessel called Boora mainly used on the coast, but also between Hugly and Dacca. He noted that "A Boora being a Very floaty light boat, rowinge with 20 or 30 Owers. These carry Salt peeter and Other Goods (from Hugly) downewards, and some trade to Dacca with Salt; they alsoe Serve for tow boats for the Ships bound up or downe the River."[42] On the Ganga-Brahamputra river and into an arm of Ganga boats of up to 600 tunns burthen could go as far as Dacca.[43] Earlier in late sixteenth century, we have also reference of a boat having 24 or 26 ores called Percose by Fitch.[44]

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40 Bowrey, pp. 225, 229.

41 Hamilton, II, pp.20-21.

42 Bowrey, pp. 228-29.

43 Ibid., pp. 149-50, 161-3.

44 Fitch in *Early Travels*, p. 26. The editor has identified it as 'porgos' or 'purgoos' of the later writers.

As far as type of vessels used in the Indus river system is concerned, generally flat bottom or shallow-draught vessels were used. In 1596, Akbar built a *Jahaz*, at Lahore on a shallow barge, which could carry 15,000 mans (or 376,650 kg.) or more, to carry it easily to the sea at Lahari Bandar.[45] Finch in early seventeenth century noted that the vessels plied from Lahore to Thatta were of sixty tons or upwards.[46] Salbancke in second decade of seventeenth century, found 'barks' of 40 or 50 tons at Bhakkar.[47] In c.1626, Pelsaert noted that shallow-draught vessels were the usual means of conveyance.[48] In 1639, Bornford noted that the flat bottomed vessels were of a thousand and 2000 'means' i.e. 33 tons or 66 tons.[49] In early eighteenth century, Alexander Hamilton noted for vessels in the Indus in detail that "Their Vessels are called *Kisties*, of several Sizes. The largest can lade about 200 Tuns. They are flat-bottomed, and, on each Side, Cabbins are built from Stern to Stem, that overhang about 2 Foot; and, in each Cabbi, is Kitchen and a Place for Exoneration, which falls directly in the Water. Those Cabbins are hired out to Passenger, and the Hold, being, made into separate Apartment, are let out to Freighters, so that every one has a Lock on his own and has his Goods always ready to dispose on at what Place he finds his Market. And indeed in all my Travels I never saw better Conveniencies of travelling by water. They have one Mast of a good

45 *AN*, III, pp.715-16. (a *man –i Akbari* was about 25.11 kg.).

46 Finch in Early Travels, p. 161.

47 *Purchas*, III, p. 85.

48 Pelseart, p. 31-32.

49 *EFI, 1637-41*, pp. 136-137; Irfan Habib, *Atlas*, p. 12.

Length, and a Square-sail to use when the Wind is a-stern, or on the Quarter; but they never hale close by the Wind. They are obliged to carry a great Number of Men for tracting them up against the stream, when the Winds are against them."[50] Thus it appears that the maximum tonnage of usual flat bottomed vessels in the Indus was not more than 200.

Vessels plying on the coast though smaller in size in comparison to the vessels plying on the ocean, were larger than the vessels used on the river. *Ghurab*, *tawry*, *sambuk*, *shibar*, *manchua*, *balloon*, *masula* etc. were the vessels which mostly used to ply on the coast but occasionally they were used on the ocean also. *Ghurab* was also used for loading and unloading ships anchored at a distance from the shore.[51] In the second decade of seventeenth century Methwold noted about 'barkes' (barges) at Masulipatnam on the Coromandel coast that "For once a yeere there ariveth at Masulipatnam a fleet of small vessels from thence [*Bengal*], of burden about twenty tunnes, the plankes only sowne together with cairo (a kinde of cord made of the rinds of coconuts), and no iron in or about them..."[52] In 1634, English factor noted at Masulipatnam , that for trade on the coast of Bengal they needed vessel of some 80 or 120 'tunnes' as the Dutch had. These vessels drew little water and carried 13 to 14 guns, and were used to "trade from port to port all the yeare longe, sometimes buyinge rice and other provisions where they are cheape and transport it to better markets,

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50 Hamilton, I, p.123.

51 *Tuzuk*, p. 206; *Tarikh-i Tahiri*, Or. 1685, f. 50a-b.

52 *Relations*, p.40.

otherwhiles they are imployed as men of warr (but never idle);..." They further noted that "...there 's noe thought of trade into the Bay without them, our greater shipps ridinge so farre from the shoare, and the Kinge of Arrackans jelliaes (or small boats of warre) ever scoutinge 'twixt them and the land, insomuch as neither goods nor provisions cann be brought of without pinnaces of some defence, such as we have nam'd, which may goe up the rivers for the same without feare and transport it to the bigger vessells."[53] Durson in partnership with a Moor of Balasore, had built a vessel of 200 tons, in which he intended to trade from port to port.[54] Bowrey informs us about vessels used in Bengal and Orissa for carrying goods such as Purgoo, Boora etc. About Purgoo, a barge and also a sailing boat, he noted that "these Use for the most part between Hugly and Pyplo and Ballasore. With these boats they carry goods into the Roads On board English and Dutch &c. Ships. They will live a longe time in the Sea, beinge brought to anchor by the Sterne, as their Usual way is". And about Boora or *bhar*, a lighter, he noted that "A Boora being a Very floaty light boat, rowinge with 20 or 30 Owers. These carry Salt peeter and Other Goods (from Hugly) downewards, and some trade to Dacca with Salt; they alsoe Serve for tow boats for the Ships bound up or downe the River."[55]

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53 *EFI, 1634-36*, pp. 41-43.

54 Ibid.,*1651-54*, p. 92.

55 Bowrey, pp. 228-29 & 2n and 5n on p.228.

However, vessels of large size from 4, 5, or 600 'tons' were also used to ply in the Bay.[56]

So far as vessels plying on the ocean are concerned up till 1500, in India there were two broad traditions of ship-construction '*dhow*' tradition which according to Archibald Lewis 'long-standing Indian design' and 'junk' or Chinese tradition which Lewis calls 'Chinese-Southeast Asian style'.[57] Persian sources generally used the terms of '*jahaz*' and '*junk*' for the vessels used on the ocean. It is true that Chinese junks were withdrawn from the Indian Ocean in middle of the fifteenth century, but Indians in Mughal period continued to copy the construction of Chinese type vessels.[58] However the Mughal Indian junks were different in some particulars from their Chinese prototype. We have a very good description of the Indian junk from Peter Mundy at Surat. He tells us 'Juncks are theis Country vessels, soe called by us, of which many belong to this place, among the rest some of 1000 or 1200 Tunn each, and but one Deck. Theis put to Sea with

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56 Ibid., pp. 161-63.

57 For details of these traditions see Simon Digby, 'Maritime Trade of India, c. 1200 to 1500', in T. Raychaudhuri and Irfan Habib, eds., *Cambridge Economic History of India,* vol. I, pp.125-159, especially 127-35; and Archbald Lewis, 'Maritime Skills in the Indian Ocean 1368-1500', *Journal of the Economic and Social History of the Orient (JESHO),* vol. XVI, parts II-III, 1973, pp. 238-264, especially 247-249.

58 The term is probably derived from the Malay ajong or jong. For the different characteristics of junks see Pierre-Yves Manguin, 'Trading Ships of the South China Sea. Shipbuilding Techniques and Their Role in the History of the Development of Asian Trade Networks', *JESHO,* Vol. 36, No. 3 (1993), pp.253-280.

Easterly Monsoon, and before the wynde out goe our shipps, by reason of purpose, as being confident of the continuance of faire and moderate winds and weather during that Monsoon.'[59] These junks had particular kind of movement as noted in 1663 by English factors where they warned against using a 'jounk for that ....doe by a wind too much resemble in their motion the nature of crabbs, who looke one way and creep a contrary'.[60] Abul Fazl himself used the word *qafila-i junk* for the convoy of the vessels acquired by Akbar, for sending his family ladies for hajj in 1576.[61] Of the two ships, built by Akbar himself at Lahore, the first one had length of its keel 35 *gaz-i ilahi*, a little over 93 feet and second one, a length 37 *gaz*, or nearly 99 feet, but whether at keel or at upper deck is not stated. One supposes that their design was based on the plan of the Indian junks.[62] Again, it is inferred from a rare manuscript of Mughal period preserved in Bibliotheque Nationale Paris (Blochet. Supp. Pers. 482) and translated by Shireen Moosvi, that two famous ships of Shah Jahan , *Shahi* and *Ganjawar* were

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59 Mundy, II, p.30. According to Irfan Habib, "these 'junks', which counted among them some of the biggest ships in the world at the time, had immense main sails, and were designed to take the best advantage of favourable winds. This fitted them for voyage across the Arabian Sea and the Bay of Bengal, where navigation was governed by the monsoons; but also rendered them difficult to manoeuvre." (Irfan Habib, *Technology in Medieval India*, New Delhi, 2008, p. 109). See also Irfan Habib, 'The Technology and Economy of Mughal India', *The Indian Economic and Social History Review*, Vol. XVII, No. 1, pp. 1-34, especially p. 14).

60 *EFI 1661-64*, p. 253.

61 Ad. 27247, f. 285b; Shireen Moosvi, *People, Taxation, and Trade, in Mughal India*, p. 244-246.

62 Irfan Habib, ' Akbar And Technology', in Irfan Habib ed., *Akbar and His India*, New Delhi, 1997, pp.144-6;Irfan Habib, *Technology in Medieval India*, p. 109.

almost certainly junks.[63] In the English Factory Records big Indian vessels are usually designated as junks. The ships captured by the English off the Aden and Red Sea ports early in Jahangir's reign were described by them as junk and they provided us with the measurements of some of the junks. The biggest among the captured junk, the *Rahimi* was of 1500 tons 'burthen', according to John Saris, ' [It] was long from stem to sterne-post, an hundred three and fiftie foot. For rake from the Post afte, seventeene foot. From the top of her sides in breadth, two and fortie. Her depth, one and thirtie'. Again they measured the '*Mahomedee*' which was 'in length, an hundred sixe and thirtie foot. Her rake afte, twentie. In breadth, one and fortie. In depth, nine and twentie and half. Her maine Mast in length, was sixe and thirtie yards, an hundred and eight. Her maine yard, four and fortie yards, an hundred two and thirtie'. Further they found that the other junks were not much smaller.[64] Junks were also built by the Portuguese for the Indians; however it is not clear whether they built these by their own methods or in the Chinese style especially for the Indians.[65] Some Indian techniques like 'rabiting' were not followed, so that a ship built at Chaul 'being (as the *Supply*) in the major part Calked work and not rabited, which building is only known to these people' was rejected by the Governor of Surat and the servants of Prince

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63 Shireen Moosvi, *People, Taxation and Trade* pp. 265, 272.

64 John Saris in *Purchas*, III, p. 396.

65 *EFI, 1622-23*, p.343. [Emanuel Butta, Master of the Blessing, in 1623, wrote in his account of his voyage from England, in company with the Discovery and Reformation that 'On the 19th they met a junk, built by Portuguese but manned by Gujaratis, on which account they dismissed her'.]

Dara Shukoh. At the same time a ship built at Daman under the Portuguese aegis was not rejected by them which also confirm that the Portuguese did build ships for Indians keeping in mind the Indian method.[66] Later on the term junk was used for any big vessel in the Indian waters.[67]

3: MAJOR CENTRES OF SHIPBUILDING

In Mughal India, according to Abul Fazl, (c.1595) generally all over the empire ships and boats were built. He noted that on the sea-coast, in the east, west, and south, large ships were built, which "have became a source of comfort to the seafarers, the ports have obtained prosperity, and knowledge has grown."[68] There were certain places which were particularly renowned for the shipbuilding.

On the western coast Surat was one of the major centres of shipbuilding, such work being also carried out at Swally.[69] About the skill

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66 Ibid., *1646-50*, p.90.

67 See *Hobson-Jobson, A Glossary of Anglo-Indian Colloquial Words and Phrases and of Kindred Terms*, by Col. Henry Yule, and A.C. Burnell, new edition edited by William Crooke,London, 1903, s.v. junk; Bowrey, p. 181, where term junk was used for Dutch vessel. Fryer used the term 'Portugal junks'

68 *A'in*, I, pp. 144-45.

69 For shipbuilding at Swally see *EFI, 1618-21*, pp. 113, 314; *1637-41*, p. 211; *1655-60*, p. 313, 319; *1661-64*, pp.24, 79; *1668-9*, p.201; *EFI, New Series, 1670-77*, pp. ix, 39-40, 218, (two frigates namely Hunter and Revenge and ketch named Phoenix was built for the purpose of defense against the Malabars), 222-23 ('at the suggestion of Cursetji, she (the Revenge) was made broader and deeper than at first was contemplated and changes were also effected in the ketch Phoenix to make a better sailer of her'), 31(four large boats were built in 1670, for the service at Bombay), 44.

of Surat carpenters, Ovington in 1689 noted that ".....And the very ship-carpenters at Suratt will take the model of any English Vessel, in all the Curiosity of its Building, and the most artificial Instances of Workmanship about it, whether they are proper for the Convenience of the Burthen, or of quick Sailing, as exactly as if they had been the first Contrivers. The Wood with which they build their ships would be very proper for our Men of War in Europe; for it has this Excellence, that it never splinters by the Force of Bullet, nor is injur'd by those violent Impressions, beyond the just bore of the shot."[70] Earlier in 1668, advocating the building of ships in India, the English factors noted: "And if any shall object they may not have that shape, or be soe profitable for stowage of goods, as our English shipps are, we answere that these carpenters are growne soe expert and masters of their art that here are many Indian vessails that in shape exceed those that come, either out of England or Holland."[71] We have uncountable evidence for the shipbuilding at Surat.[72] Abdur Rahim Khan-i Khanan, a great noble who

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70 Ovington, p. 166.

71 *EFI, 1668-69*, p. 80. The English turned towards constructing ships in India on large scale and admired and adopted the Indian method of ship-construction after 1668, which Irfan Habib has called 'an unchronicled revolution in the Indian ship-building industry' (Irfan Habib, *Technology in Medieval India*, p. 111, see also Irfan Habib, 'The Technology and Economy of Mughal India', *IESHR*, Vol. XVII, No. 1, p. 15).

72 Shireen Moosvi, *People, Taxation and Trade*, pp. 244- 256 and again pp. 257-274; see also *EFI, 1655-60*, pp. 301, 313, 319; in 1660, in Surat the number of ships increased about 400% in a span of ten years (A. J. Qaisar, 'Shipbuilding in Mughal Empire during Seventeenth Century', *IESHR*, Vol. V, No. 2, June 1968. p. 168); *1661-64*, p. 24;*1668-69*, p. 201. etc.

was governor of Gujarat under Akbar (1584-5, 1586-88) and held Surat in his *jagir*, built and owned three ships, namely, *Rahimi*, *Karimi*, and *Salari*.[73] The ship on which Bayazid and other persons went to the Red Sea '*Muhammadi*', was jointly built and owned by Qutbuddin Khan, a foster brother of Akbar who was posted as commandant of Baroch after the conquest of Gujarat, and Qulich Khan, who was the first Mughal governor of Surat after its conquest by Akbar.[74] Another noble of Akbar, Sadiq Muhammad Khan, Khan-i Jahan, who held Surat and Baroch in *jagir* in 1593, built besides other ships, the *Sadiqi* and *Akbarshahi*.[75] Surat obtained timbers easily from its surroundings. In 1618-19, for the building of Prince Khurram's Junk *Shahi*, timber was procured from the *pargana* of Telari in the *sarkar* of Surat.[76]Gandavi which itself was a good port and known for shipbuilding, and Bulsar were known for their timber, which were considered best and cheapest.[77] Navsari was also famous for its timber, and

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73 Abdul Haqq Nihawardi, *Maasir-i Rahimi*, edited by M. Hidayat Hosain, Bib. Ind. Calcutta, 1910-13, p. 611.

74 *AN*, III, p. 31; Bayazid Bayat, p. 354; Cf. Shireen Moosvi, *People, Taxation and Trade*, pp. 245, 246 -247.

75 Blochet, Sup. Pers. 482, ff. 170a-b, 167a-8b, 132b; and for its translation and other detail see Shireen Moosvi, *People, Taxation and Trade*, p. 249-50 and Appendixes E, F and G at pp.255-6.

76 Shireen Moosvi, *People, Taxation and Trade*, p. 266.

77 *EFI, 1622-23*, p. 310, the English wanted to buy or build four frigats in a year either at Surat, Baroch or at Gandevi; *1634-36*, p. 136, the English factors first suggested the building a couple of frigates at Naosari or at Gandevi, but they did not wanted to depend on ' the inconstant promise of our perfidious Governor', shifted its construction to Daman; Hamilton, I, p.104; *EFI, 1668-69*, p. 65.

that were supplied in boats to Surat.[78] It was also a shipbuilding centre and the Dutch claimed to be the first European purchasers of the Indian built ship from here.[79] Shipbuilding at Baroch depended on the timbers from other places which were brought in boats.[80]During the reign of Shah Jahan, Ali Akbar Isfahani, merchant from Persia, whose father had migrated from there, built a ship at Khambayat.[81]

Under the Portuguese, ships and boats were built at several places, such as at Diu, Goa, Daman, Bassien etc. but their main shipbuilding centres were Daman and Bassein.[82] The English factors after their peace with Portuguese, used to purchase from these places. In December, 1639, a ship of 300 tons was purchased and was named the *Supply*.[83] In 1640, a Portuguese galliot of 140 tons burden was purchased and it was renamed

78 *EFI, 1618-21*, p. 119; *1634-36*, p. 136.

79 Pieter van den Broeke, 'Surat Dairy', 1620-29, transl. W.H. Moreland, *JIH*, X, 1931, p. 240.

80 *EFI, 1622-23*, p. 310; *1661-64*, p. 24-25; Mendelslo, p. 14.

81 Lahori, *Badshahnama*, II, p. 606.

82 We have many references to these places in English Factory Records, especially when the English built there vessels there, such as *EFI, 1618-21*, pp. 82, 83, *1624-29*, pp. 85, 198, 218; *1634-36*, pp. 98, 103, 107, 108, 109, 119, 136, 137-138, 147, 148, 177, 180, 217; *1637-41*, pp. 42, 110, 240,243; *1646-50*, pp. 90-91; *Selections from Letters, Despatches and other State Papers preserved in the Bombay Secretariat, Home Series,* vol. I, ed. George W. Forrest, Bombay, 1887, p. 62; Abbe Carre also found at Bassein that "There is also a ship-building yard, six vessels were now on the stocks under construction for the Governor, who has the monopoly of this business here, but can at his discretion give permission for it to anyone else." (Abbe Carre, III, p. 725).

83 *EFI, 1637-41*, p. 209.

Hope.[84] In 1646, a ship of 250 tons built at Chaul and rejected by the servants of Prince Dara Shukoh, was purchased by the English and after some modification it was turned into a good ship and was named as *Expedition.*[85]

Later on areas adjoining Bombay, became the main centre of shipbuilding, after the coming of English there.[86] Initially they wanted to bring timbers from Gandevi and Bulsar, where in their judgement timbers were the best and cheapest; however, they found the conveyance of timbers overland very expensive due to fear of payment of excessive customs to the Portuguese.[87] Later on, timbers were brought from Bassein and they found "good tymber as the world afforded, and especially near Bombay, to be had cheaper then in any other places."[88] Timber was also brought from Karwar and Baliapatam, though the timber from Karwar was very good but very dear also.[89] But Surat remained the important source of timber for Bombay as in 1672, the Captain of Bassein prohibited the supply of timber and at the

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84 Ibid., p. 227.

85 Ibid., *1646-50*, p. 90-91.

86 Ibid., *1668-9*, pp. 61, 65, 66, 75 (two partly built vessels were sent from Bassein to be fitted at Bombay to enrich the fame of Bombay), 79, 80; *EFI, New Series, 1670-77*, vol. I pp. 54, 74, 108, 132 (boat building was encouraged by adopting various measures and it was further encouraged by Portuguese order forbidding their merchants to let out vessels to any belonging to Bombay)

87 Ibid., pp. 65, 66, 71.

88 Ibid.,, 1668-9, p. 75. 79.

89 *EFI, New Series, 1670-77*, vol. I. pp. 30-31.About Karwar Hamilton noted that 'The Woods produce great Quantities of good Teak Timber, useful in building both Ships and Houses. It is more durable than Oak. And there is good Poon Masts, stronger, but heavier than Fir.'(Hamilton, I, p.264).

same time the English could not obtain it from the Malabar Coast, so they brought it from Surat. The duty charged on the timber from Bassein was 33% in addition to 20% required for a permit from the Captain of Bassein for its transport.[90] At the same time, they had to pay 33% custom to the Portuguese for the timbers for shipping and houses, which they called the "oak of India", which grew at Kalyan and Bimurly, and passed necessarily by Tanna.[91]

On the Malabar Coast besides other centre of shipbuilding, it was Badgara which attracted even the European like Hamilton to have a wish to buy a ship there. But it could not be fructified due a tradition there, that the new ship was not sold until it was first used by builder or buyer.[92]

On the Coromandel Coast, shipbuilding was carried on, initially by the Golconda rulers and their nobles, but later on Europeans also began to build ships there. Shipbuilding was mostly carried on at Masulipatnam, Narsapur Peta and Madapollam. There was abundance of timber, especially teak, around these centres, it being floated down the river Godavari to both Narsapur and Madapollam.[93] Above all, there was plenty of iron near this coast. Abul Fazl, recorded the presence of iron in Indur and Nirmal,

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90 Ibid., 1670-77, p. 57, 159.

91 *Selections from Bombay*, I, pp. 62, 120.

92 Hamilton, I, pp. 302-3.

93 *Relations*, p. 80; Hamilton, Pinkerton, p. 397, 398; Bowrey, pp. 99, 102; Irfan Habib, *Atlas*, p. 62; Sanjay Subrahmanyam, ' A Note on Narsapur Peta: A " Syncretic" Shipbuilding Centre in South India, 1570-1700', *JESHO*, vol. 31, No. 3, 1989, pp. 305-311, especially p. 307.

convertible into steel.[94] Iron was also available at Nagalvancha, Bimlipatam, and Mutapalee.[95] Methwold, in the second decade of seventeenth century, found that their vessels were built of very good timber and iron.[96] In the 1580s, Muhammad Quli used to send every year large ships of 600 tons, if not larger still built at Narsapur Peta to Red Sea.[97] In the early seventeenth century, after the coming of the Dutch and English on this Coast, Narsapur became noted shipbuilding and repairing centre. Methwold, in the second decade of the seventeenth century, noted that for the purpose of trade "they build great ships, and good ones too, considered in their burthen and materials, but not comparable to ours for beautie, conveniencie, or defence, some of them not less than 600 tunns, substantially of very good timber and iron; whereof we have had upon some occasion good experience in careening the Globe, Salomon, and Clawe, in the river of Narsoporpeta."[98] Similarly Schorer, in the same decade, noted

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94 *A'in*, II, p.110; see also Thevenot, p. 112; Fr. Martin, extracts tr. Ray, *Islamic History & Culture*, IX, 1968, p.38; Irfan Habib, *Atlas*, p. 62.

95 Master, II, p. 115; Thevenot, p. 148; Bowrey, pp. 55-6.(Bowrey noted that 'iron, steel' was brought down from 'Montapolee' in the high land behind Nizampatan).

96 *Relations*, p. 36. see also p. 63.

97 Sanjay Subrahmanyam, 'Persians, Pilgrims and Portuguese: The Travails of Masulipatnam Shipping in the Western Indian Ocean, 1590-1665', *Modern Asian Studies*, vol. 22, No. 3, 1988, pp. 503-530, especially p.505; Subrahmanyam, 'A Note on Narsapur', p. 307. Accordingly, Sanjay Subrahmanyam, infers that the 'nao mourisca' "in the style of Mecca", and others sent from Masulipatnam to Pegu in the 1580s and 1590s were built at Narsapur (Subrahmanyam, 'A Note on Narsapur..', pp. 306-307).

98 *Relations*, p. 36. The globe was refitted at Narsapur so as to be "a far better ship than when she first came out of England". (*Letters Recd*, II, p. 41)

that "A place called Narsapur Peta lies about 10 to 12 leagues beyond Masulipatnam;...Here there is a river where the Moslems, the Portuguese, and also the Gentus, build their ships, because timber, iron, and other necessary materials are available, and wages are low."[99] But there was a difficulty in bringing out ships built or sheathed in Narsapur river, until the northerly monsoon began to blow in October.[100] In 1638, a ship of 800 tons was built by Mir Muhammad Sayyid.[101] In 1668 English Factor, Jearsey, had built a new ship of 200 tons, at Madapollam.[102] In 1670, Thomas Bowrey, noted about Madapollum that "Many English Merchants and Others have yearely Ships and Vessels built here, beinge the onely Commodious Port on this or the next Coast adjoyneinge thereto, vizt. Gingalee."[103] He further described the sheathing of a vessel in the range of 1000 tons, at Narsapur.[104] Besides these, there are several example of shipbuilding by the merchants and nobles of Masulipatam at Narsapur.[105]

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99 Ibid., p. 63.

100 Ibid., Anonymous, p. 80.(the river was southern or Vasishta, mouth of the Godavari)

101 *EFI, 1637-41*, p.80.

102 Ibid., *1668-9*, p.164 (see also Ibid.,*1661-64*, p. 391 for convenient place of shipbuilding and repairing at Madapollam)

103 Bowrey, p. 102. He further noted that "Here is the best and well growne timber in Sufficient plenty ; the best Iron upon the Coast is for the most part Vended here and att reasonable rates, with the Workmanship alsoe; any Sort of Ironworke is here ingenuously performed by the Natives, as Speeks, bolts. Anchors, &c."

104 Bowrey, pp. 103-104.

105 Subrahmanyam, 'A Note on Narsapur', pp. 305-311.

In the Bay of Bengal, boatbuilding was carried out on large scale in comparison to shipbuilding, due to the reason that in the bay for port to port trade and collection of merchandise, small vessels were needed as large vessels were not able to reach near the shore. In 1634, the English factors at Balasore noted that there was no thought of trade in the Bay without small vessels, as the great ships ride afar from the shore and it was the small vessel which used to bring provisions for the great ships. Therefore they thought to buy or build smaller vessels there. They purchased a 'not half finished' pinnace of 100 tons 'burthen' from the Governor of Balasore and finished it. Another small frigate was likewise bought in Bengal about the same time (named the *Marigold*) of some 30 tunns (cost rupees 900).[106] Earlier, in 1633, when Burton, with other English colleagues, went Balasore, they found that it was a great sea town, where many ships and other vessels were being built. They further got licence "to build shipping, small or great, or any other vessels they think best and fittest for their occasions and uses."[107] Durson in partnership with a Moor of Balasore, had built a vessel of 200 tons, in which he intended to trade from port to port.[108] In 1661, ships were built by English Factors in the Bay and were named

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106 *EFI, 1634-36*, pp. 42-43, 44. Hamilton observed the problem in reaching the great ships on the shore, that "The Sea-shore of Ballasore being very low, and the Depth of Water very gradual from the Strand, make Ships, in Ballasore Road, keep at a good Distance from the Shore, for, in four or five Fathoms, they ride three Leagues off." (Hamilton, I, p. 394).

107 *Early Annals* vol. I, pp. 9, 11, 12.

108 *EFI, 1651-54*, p. 92.

Methew and *Thomas*.[109] Europeans, especially Dutch and English were employed in constructing small vessels for the Mughal authorities. The Dutch built a galliot for the Nawab (Governor), at Hugli, which was sent to Decca.[110] Under the supervision of an English Mr. Pits a galliot was built at Decca.[111] In 1663, Thomas Pratt an Englishman was employed by Nawab Mir Jumla for building boats.[112] In 1664, Pratt with four other persons went to Rajmahal to offer the new Nawab their service in building ships and cannons.[113] In 1664, English factor, Black had built three boats to carry goods between Balasore and Hugli.[114] In 1669, the English noted regarding building of small vessels at Narsapur instead of at Hugli, that "wee are informed that vessels are better built in the Bay, and at easier rates for materials and workmen, then in these parts."[115] However, vessels of large size from 4, 5, or 600 'tons' were also built in the Bay.[116] The Bay was naturally filled with timbers especially the *sarkar* of Bazuha which had timbers especially for mast and boats.[117] Sagar Island afforded great store of large Timber to building ships.[118] The Ganjam territory also had timbers for

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109 Ibid., *1661-64*, p. 67.

110 Ibid., p. 70.

111 Ibid., p. 71.

112 Ibid., p. 294.

113 Ibid., p. 393

114 Ibid., p. 401.

115 Ibid., *1668-9*, p. 308.

116 Bowrey, pp. 161-63.

117 *A'in*, II, p. 51; Manrique, II, 123; Hamilton. Pinkerton, p. 416.

118 William Hedges, *Diary*, I, p. 172.

building.[119] Abul Fazl records iron mines in the *Sarkar* of Bazuha, which bordered the Khasia Hills.[120] Iron was also found in the Nilgiri Hills, and between Bhadrakh and Balasore and near Ganjam.[121]

Shipbuilding was also carried out at Lahore; due to availability of timber from the Himaliyan region.[122] However it was not a sea port, and the nearest sea port, Thatta whose outer port was Bandar Lahari, had little access to timber for building ships.[123] In 1594 and 1596, as already mentioned Akbar built two large ships at Lahore in the river Ravi, whose technological aspect has been studied by Irfan Habib in detail.[124] An immense quantity of iron in the form of nails, strips, rings, etc. was used in the construction of the first ship. However, we have no details of quantity of iron used in the second ship. Due to problem in transporting the first ship to Thatta, owing to shortage of water in the river, the building of the second ship was carried upon a barge, which in English parlance is **ship's camel**. It carried the ship in the sea and later on the barge was scuttled there.[125] Sea

119 Hamilton, I, p. 379.

120 *A'in*, II, p. 51; Irfan Habib, *Atlas*, p. 48.

121 Willam Hedges, *Diary*, I, p. 67 (Hills afford store of Iron, which furnishes all this country); Hamilton, I, p. 379,, Pinkerton, 405-6.

122 Irfan Habib, 'Akbar and Technology', p. 144.

123 *AN*, III, p.716; Irfan Habib, 'Akbar and Technology', p.144. However timber floated downstream on the river Indus to Thatta. (*EFI, 1634-36*, p.244; Irfan Habib, *Atlas*, p. 16)

124 Ibid., III, pp. 651-2, 715-16; Irfan Habib, 'Akbar and Technology', pp. 144-46.

125 Irfan Habib, 'Akbar and Technology', p. 145.

going vessels like *ghurabs* were also built in Kashmir, but these plied in the river Jhelum only.[126]

In Mughal India, planks of vessels were joined mostly by a method called 'rabeting', a tongue and groove method. However other methods were also applied by them.[127] Whereas 'rabeting' was also done by the Europeans, they mostly relied on the method called 'caulking'.[128] In 1668 the English factors advocating the building of ships in India wrote to the Company that ".....the carpenters wrought their work very cheape, substantial, and strong, of planke let into each other, with cotton tarr, and then spiked, which is called riveting worke, this is, to our knowledge, very lasting, and admitts no cauklking or other trimming then chynaming once a year, which is done in one springe [tide], and this execuseth all caulking worke, ocum, pitch, and tarr, with the expence of many carpenter and caulkers;... ."[129]

Earlier, Indians used to join the planks by stitching or sewing with rope. It is only at the beginning of the sixteenth century that sources begin to note the presence of iron fastenings in Indian ships, as is shown by the accounts of Pedro Alvares Cabral, who tells us that on the south west coast

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126 *AN*, III, pp. 727-28; Irfan Habib, 'Akbar and Technology', p.146.

127 A. J. Qaisar, *The Indian Response to European Technology and Culture AD 1498-1707*, New Delhi, 1982, reprint, 2000, p.20.

128 A. J. Qaisar, *Indian Response*, pp. 20-21. 'a technique of making joints or seams tight or leakproof by forcing oakum between parts that are not thightly-fitted. Thus, caulking was actually the next step in European shipbuilding after the planks were joined together by any method in carpentry'.

129 *EFI, 1668-69*, p.79.

that 'the ships are made with iron nails'.[130]Ludovico di Varthema, in the first decade of sixteenth century found at Calicut that 'they put in an immense quantity of iron nails' in building their ships.[131] Gaspar Correa, writing the history of the first voyage of Vasco da Gama, noted that most vessels present at Cananor were sewn, but there were iron-nailed vessels also which were flat-bottomed.[132] If we believe Gasper Correa, who mentioned the presence of nailed vessels at Andijiva and Cananor, at the coming of Vasco da Gama, it cannot be denied the use of iron in Indian vessels, however, was not employed on a large scale. In Mughal times, on the contrary, we have ample evidence that there was no dearth of iron in India, especially on the Coromandel Coast.[133] In Mughal India, in late sixteenth century, we have very interesting and informative description of use of iron nails in joining planks, in the *Akbarnama* of Abul Fazl. An immense quantity of iron nails was used in the building of two ships at

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130 *The Voyage of Pedro Alvares Cabral to Brazil and India, from contemporary documents and narratives*, transl. with introduction and notes by By William Brooks Greenlee, p. 105.

131 Ludovico di Varthema, *The Travels of Ludovico Di Varthema in Egypt, Syria, Arabia Desert and Arabia Felix, in Persia, India, and Ethiopia, A.D. 1503 to 1508*, transl. from the original Italian edition of 1510, with a preface by John Winter Jones, and edited with notes and introduction by George Percy Badger, Hakluyt Society,1863, p.152.

132 Gasper Correa, *Three Voyages of Vasco da Gama, And His Viceroyalty from the Lendas da India Of Gasper Correa, Accompanied by Original Documents*, transl. from the Portuguese, With Notes And An Introduction, by The Hon Henry E. J. Stanley. Hakluyt Society, 1869, p.241.

133 *A'in*, II, p. 110; Thevenot, p. 148; Master, II, p. 115; Bowrey, pp. 55-6; Willam Hedges, *Diary*, I, p. 67; Hamilton, I, p. 379,, Pinkerton, 405-6.

Lahore by Akbar in 1594 and 1596.[134] From the paintings of Mughal period it is also confirmed that they used iron in building their ships.[135] And this is an important proof against the popular notion that, Indian ships were only stitched and sewn with rope and there was no use of iron. The use of iron was already prevalent in the China even before the coming of Portuguese, which undermines the supposition that this shift towards the use of iron was due to European influence.[136] It may be possible as A.J. Qaisar has suggested that the shift towards use of iron was a necessity to cope with the strong and war-like ships of the Portuguese.[137]

It is true that, most of the Indian vessels, before the Mughal period had no decks, as observed by the travellers in that period. Stefano in 1490, during his return journey from Sumatra to Cambay, met with an accident, 'so that the vessel, having no deck, became filled with water to such a

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134 *AN*, III, pp.651-2, 715-6; See Irfan Habib, ' Akbar And Technology', pp.144-6; Irfan Habib, *Technology in Medieval India*, p.109 and Shireen Moosvi, *People, Taxation and Trade*, p. 251.

135 *Darabnama*, BM Or. 4615, ff. 31a, 76b, 55a; Pl. 3/117 (*Akbarnama*, V & A); see also S. P. Verma, *Art and Material Culture in the Paintings of Akbar's Court*, Pl. lxxi.

136 For use of iron in China see Joseph Needham, *Science and Civilization in China*, vol. IV, p. 467. The precise date of adoption of iron to fasten planks in China is not made clear in Needham's study, but appears to be present by the 8th century A.D. (Pierre-Yves Manguin, 'Trading Ships of the South China Sea. Shipbuilding Techniques and Their Role in the History of the Development of Asian Trade Networks', *JESHO*, Vol. 36, No. 3 (1993), p.268.

137 A.J. Qaisar, *Indian Response*, pp. 23-27; Moreland ('The Ships of the Arabian Sea about A.D. 1500', *Journal of the Royal Asiatic Society of Great Britain and Ireland*, January 1939, pp. 63-74 and April 1939, pp. 173-92, especially p. 189) suggested the absence of iron was due to high cost of iron.

degree, that there was no means of bailing it out, and it sunk, and those who could swim were saved and the rest were drowned.'[138]Earlier Marco Polo (c.1290) and later Barbosa in 1516 had found the Indian vessels without decks.[139] But at the same time we have a description from Nicolo Conti (1419-44), who found Indian vessels with decks and compartments.[140] In our period the vessels were built with decks. During his return journey from Mecca in 1582, Bayazid had to retire due to the mutiny of Gujarati *khallasis*, who were sympathetic to Muzaffar, the former ruler of Gujarat, into special cabin (*dabosa*). According to Tek Chand Bahar, 1739-40, a *dabosa* was cabin in ship or boat which was below the elevated part of deck.[141] And it was the characteristic of the junk-type vessels to have a deck.[142]Most striking description of decks and cabin comes from Hamilton, who found these features even in a boat (*kishti*) on the Indus. He observed that, 'Their Vessels are called *Kisties*, of several Sizes. The largest can lade

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138 *India in the Fifteenth Century*, edited with introduction by R. H. Major, reprint Delhi, 1974, Santo Stefano, p.8.

139 Marco Polo, *The Book of Ser Marco Polo*, edited by Henry Yule, and revised by Henry Cordier, London 1903, vol. I, p.102; Barbosa, *The Book of Duarte Barbosa*, reprint New Delhi, 1989, vol. I, pp.76-77.

140 *India in the Fifteenth Century*, Nicolo Conti, p. 27. 'they build some ships much larger than ours, capable of containing two thousand butts, and with five sails and as many masts. The lower part is constructed with triple planks, in order to withstand the force of the tempests to which they are much exposed. But some ships are so built in compartments, that should one part be shattered, the other portion remaining entire may accomplish the voyage'.

141 Tek Chand "Bahar", *Bahar-i Ajam*, 1739-40, litho. Nawal Kishor, Luknow, 1916, s.v. *dabousa*; see also, Shireen Moosvi, *People, Taxation and Trade*, p. 248.

142 Peter Mundy, II, p. 30.

about 200 Tuns. They are flat-bottomed, and, on each Side, Cabbins are built from Stern to Stem, that overhang about 2 Foot; and, in each Cabbi, is a Kitchen and a Place for Exoneration, which falls directly in the Water. Those Cabbins are hired out to Passenger, and the Hold, being, made into separate Apartment, are let out to Freighters, so that every one has a Lock on his own and has his Goods always ready to dispose on at what Place he finds his Market. And indeed in all my Travels I never saw better Conveniencies of travelling by water…'.[143]

COST OF CONSTUCTION:

Cost of construction of a ship is one of the important aspects. However there is almost no evidence in contemporary Persian sources except one in *Akbarnama* of Abul Fazl, but we can form some idea about it by collecting some references from the European sources. In 1594, Akbar built a Jahaz, probably an Indian junk, having length of its keel 35 *gaz-i ilahi*, a little over 93 feet, cost him Rs.17, 335 or 1950 pounds 10s. 6d.[144] In 1616, a coasting vessel of 20 to 30 tons owned by Khawaja Arab, at Swally Marine was valued at 2000 mahmudis or Rs. 800.[145] Thus its cost ranged between Rs. 26.66 to 40 per ton.[146] In 1634, a vessel of 30 tons (named the *Marigold*) was purchased by the English factors in Bengal at the cost of

143 Hamilton, I, p. 123.

144 Irfan Habib, ' Akbar And Technology', pp.144-6; Irfan Habib, *Technology in Medieval India*, p. 109.

145 *A supplement Calendar of Documents…1600-1640*, p. 102; *Relations*, p. 40, *EFI, 1634-36*, p. 103.

146 See also A. J.Qaisar, 'Shipbuilding in Mughal Empire..' p. 162.

Rs.900.[147] It means that it cost Rs.30 per ton. In 1639, in Multan a vessel (of flat bottom) of '2,000 maens' (66 tons) burthen cost not more than Rs.250 or thereabouts and at Thatta the cost was more or less the same.[148] Thus it cost less than Rs.4 per ton. Very cheap cost in comparison to the other vessels is perhaps due to the reason that these were river vessels, whereas others were coasting or ocean going one. In 1646, a vessel of 250 tons, of European-built, first purchased and then rejected from Chaul by servants of Prince Dara Shukoh, was later purchased by the English for Rs.13,500.[149] Thus it cost Rs.54 per ton. Therefore from the above evidences, it may be concluded that, the average cost of Indian coasting and oceanic vessels were whereas about Rs.30, the European-built vessel cost about double of it. At the same time the river vessel cost very cheap, almost 8 times less than the Indian and 14th times that of the European-built.

So far as wages of the ship-carpenters in Mughal India is concerned we have very scanty evidences. During Akbar's period, Abul Fazl noted that in Kashmir due to prevalence of boat as main means of transport, carpenters derived a thriving trade.[150] However he did not gave their wages, but it might be inferred that they were paid good wages. In 1622, chief carpenter at Surat, who was sent from Broach, with other carpenters was paid one *mahmudi* a day, and the rest three-quarters of a *mahmudi* each and

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147 *EFI, 1634-36*, p. 44.

148 Ibid., *1637-41*, p. 136.

149 Ibid., *1646-50*, p. 90.

150 *A'in*, II, p.170.

they were paid 25 *mahmudis* in advance.[151] In 1668, the chief carpenters at Bombay were paid 1s.8d. a day and the labourers were paid 3 ½ d. a day.[152]

FREIGHT CHARGES:

As so far freight charges on the different routes or between different ports are concerned, information is scattered and scanty. However I have tried to collect some quotations regarding this. These quotations are generally from the seventeenth century. During this period there were variations in weights and currencies and since for comparative purposes adjustments have to be made for them, I have to convert the freight into 100Kg/Rs. Before discussing the freight rates, we have to keep in our mind certain factors which affected the rates besides other factors, such as availability of vessels, competitions from the rival trading companies and atmosphere of safety on the vessels etc.

Table 3.1: Freight Charges between different Ports

From	To	Particulars	Period	Freight Charges		References
				Freight charges/unit	100kg/Rs.	
Ormuz	Surat	Goods	1622	12 larres/camel's load	Rs.2.18 or Rs.1.82	EFI 1622-23, p. 23.
Broach	Swally Road	Goods	1622	fifty mahmudi/boat	Rs.0.1327	EFI 1622-23, P. 261.
Sehwan	Thatta	Indigos, baftas, butter, oil, opium etc.	1635	Rs.1/six maunds of 40 pice per ser	Rs.0.4978	Ibid. 1634-36, p. 129
Sind	Persia	Indigo,	1635	Rs.7 or 17 larin/'curwar'	Rs.2.61	Ibid., p.133
Multan	Thatta	Goods	1639	¾ rupee /maen	Rs.2.24	EFI 1637-41, p. 136.

151 *EFI, 1622-23*, p. 93.

152 Ibid., *1668-69*, p. 81.

Sann	Thatta	Indigo	1639	½ rupee/maen	Rs.1.49	Ibid. pp. 136-7.
Bussra	Surat	Horses	1642	Five tomands/horse		EFI 1642-45, pp.2-3
Masulipatnam	Persia	Cloth	1642	1½ pagodas/maund	Rs. 44.515	Ibid. p. 55
		Bengal sugar	,,	8 pagodas/candy of 500 lb.	Rs.12.346	,,
		Coarser sugar	,,	4 pagodas/candy	Rs.6.172	,,
		Gum-lac	,,	7 pagodas/candy	Rs.10.80	,,
		Benzoin	,,	12 or 15 pagodas/candy	Rs.18.51 or Rs.23.148	,,
		Cloves	,,	16 pagodas/candy	Rs.24.69	,,
		Tin or tottanaga	,,	8 pagodas/candy	Rs.12.346	,,
		Steel	,,	6 pagodas/candy	Rs.6.613	,,
		Sugar candy	,,	10 pagodas/candy	Rs.15.432	,,
		Passengers	,,	10 pagodas		,,
Balasore	Masulipatam	Passengers	1643/44	15 rupees/head		Ibid. p. 72
	Persia	Passengers	,,	40 rupees/head		,,
		Cloths	,,	15 rupees/maund of 64 lb.	Rs.51.67	,,
		Sugar	,,	7 rupees/maund of 128 lb.	Rs.12.056	,,
		Calicoes	,,	15 rupees/maund	Rs.51.67	,,
Mokha	Coromandel Coast (Masulipatnam)	Passengers	1646?	20 rials of eight/head		EFI 1646-50, p. 23.
		Money	,,	1%		,,
Thatta	Kung	Goods	1652	18 rupees/ kharwar	Rs.6.72	EFI, 1651-54, pp. 116, 118

From the table 3.1, it is clear that in 1622, the freight charges between Ormuz and Surat was 12 larin per camel's load i.e. Rs.4.94 were paid for 226.5 kg. or for 271.26 kg.[153] In the same year we have information

[153] *EFI, 1622-23*, p. 23. In 1617, the English factors made three types of bales to be loaded on the camels weighing 3 ¾ and 4 ½ maunds and on each camel two bales

for the freight for a short distance between Broach and Swally Road, that a boat carrying one thousand maund of goods charged fifty mahmudis i.e. Rs.20 were charged for 15070 kg (a *man* in Gujarat was half of *man-i Jahangiri*, i.e. = ½ x 30.14kg = 15.07kg) or Rs.0.1327 were charged for 100kg.[154] The low freight rate was perhaps due to short distance as well availability and engagement of many vessels at a time also. In 1635, besides other charges, freight charge for 10 days journey between Sehwan and Thatta, was Rs.1 for 6 maunds of 40 pice per ser i.e. Rs.1 were paid for 200.8kg.[155]In 1635 between 'Scinda' and Persia, the usual charge for indigo, sugar etc. was Rs.7 or 17 laris per 'corwaur'(Kharwar), which was equivalent to 8 maunds or pucka of 40 pice per ser and for the piece goods rate was the same.[156] Freight charge, besides other charges, between Multan and Thatta, in 1639, was Rs.¾ per 'mean' and from Bubak, 9 miles west of

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of such types were loaded, it means that the weight to be loaded on camels varied from 7½ to 9 maunds (a *man-i-Jahangir* = 30.14 kg) (*Letters recd*, Vol VI, pp.237-8). Moreland noted that *larin*, a Persian money was worth less than half of one of Akbar's rupees (Moreland, *India at Death of Akbar*, p. 57). In 1635, between 'Scinda' and Persia the usual freight rates for indigo, sugar etc. was Rs.7 or 17 laris per 'corwaur'(*Kharwar*), which was equivalent to 8 maunds or pucka of 40 pice per ser (*EFI, 1634-36*, p. 133). Thus a *larin* must equal to Rs.0.41.

154 *EFI, 1622-23*, p. 261. For discussion on *man* in Gujarat see *Agrarian System*, pp. 428-30.

155 Ibid., *1634-36*, p. 129. 'The fraight is usually 6 maunds of 40 pice per seer per rupee. Other charges of customes in divers places is about 18 or 20 rupees upon a boat that carries 100 maunds or more; whereof 6 rupees are paid in Seahwaun.' A *man* of 40 pice per ser was equal to *man-i shahjahani* = 33.48kg (Irfan Habib, *Agrarian System*, pp. 421-22).

156 Ibid., p. 133.

Sehwan and from Sann about 30 miles south of Sehwan, freight to Thatta was Rs.½.[157] In 1642, governor of Surat paid five tomands i.e Rs.5 x 29 ½ =Rs.147 ½ , for each horse brought from Basrah.[158] In 1642, 1 ½ pagodas were paid for a maund of cloth, for transporting from Masulipatnam to Persia.[159] We have information that freight were not charged on the basis of fineness of the goods, but were weighed at 'Bancksall' (custom-house) and according to its weight both freight and customs were paid. From the same letter we have information that passengers got discount on lading goods paying certain amount, such as if a man lade goods paying 100 pagodas, he got his passage free and if 1000, then himself and another.[160] Negotiations were also held for fixation of freight rates, for which brokers were used. In 1652, at Lahari Bandar, port of Thatta, by negotiating freight rate for transporting merchandise to Kung in Persia, was enhanced from Rs.15 per 'carwar' (*kharwar*) to Rs.18.[161] If we set aside the security concern to some extant, rivalry between companies, benefited the merchants in certain cases. The Dutch competed very much with the English in freighting goods as they offered to the merchants less freight rates and better accommodation and no less safety. In 1637, the Dutch carried freight goods from Gombroon

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157 Ibid., *1637-41*, pp. 136-7.

158 Ibid., *1642-45*, p. 2. Tavernier noted that in India, a *toman* was exchanged for Rs.29 ½ (Tavernier, I, p. 20).

159 *EFI, 1642-45*, p. 55. A pagoda was equal to Rs.3 ½ and a 'maund' at Masulipatnam was about 26 lb. or 11.7936kg. (Tavernier, I, pp.329-30; Moreland, *From Akbar to Aurangzeb*, pp. 332, 336).

160 *EFI, 1642-45*, p. 55.

161 Ibid., *1651-54*, pp. 116, 118.

to Surat at 25% less rate then the English. They even offered to take merchants' goods at any rate the owners pleased to give. This tendency of the Dutch not only spoiled the trade of English but also snatched their freight goods.[162] Therefore we found that there were no uniformity in the freight charges between the different ports and routes.

So far as pace of vessels in various rivers is concerned, we have some information regarding this but in scattered manner. The English Factors at Patna noted that, from Patna along the swift current, Portuguese frigates, used to reach Hugli and Pipli in five or six days, but in return against the current they generally took three times more time.[163] Peter Mundy in 1632, noted about pace of vessels in Ganga river system that, in returning from Bengal to Agra they used to take five times more then in going from Agra to Bengal as they were pulled against the stream.[164] In the Indus river system, Pelseart in c.1626, noted that, from Lahri Bandar to Thatta, shallow-draught vessels used to take 8 to 10 days owing the strength of currents.[165] In 1635, English factors at Thatta noted that from Sehwan, 60 'course' by land, indigo, baftas, opium, butter and oil, etc. were brought to Thatta by boats commonly in 10 days.[166] In March 1639, Henry Bornford

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162 Ibid., *1637-41*, pp. 46-47; *1642-45*, p. 142; *1646-50*, pp.173, 199, 205, 208.

163 Ibid., *1618-21*, pp. 213-4.

164 Peter Mundy, II, pp. 87-88.

165 Pelseart, pp.31-32.

166 *EFI*, *1634-36*, p. 129. They have also noted that from Nasarpur, about 30 'course' distant from Thatta and situated on Indus river, 'comeing downe with the current, charges of transportacion must be very little' (ibid., p. 128).

noted that from Lahore to Multan ('150 course') transport of goods down the river in the flatt bottom boates of a thousand and '2000 maens' was accomplished in 11 days. .[167] In early eighteenth century, Hamilton noted that from Thatta to Lahore, 'Kisties' of '200 tuns' use to take six or seven weeks as they were obliged to track the vessels against the streams and winds with the help of number of men, but from Lahore in returning not above eighteen days and sometimes even in twelve days the journey was performed.[168] Therefore it is clear that pace of vessels fully depended on the current of the river and wind blowing at that time. They took less time along the current and wind and took thrice or fifth times more against them.

So far as interest of the Mughal Emperors, princes and princesses and nobles is concerned, the Mughal emperors from the very first day of their direct contact to the Indian Ocean just after the conquest of Gujarat in 1572 A.D., developed interest in the ocean. Akbar travelled in a *tawry*, a barge which also used to ply between India and Red sea.[169]And in a very short period Akbar sent, however, hesitantly his family members in two vessels built or acquired by him namely *Salimi* and *Ilahi* for the hajj pilgrimage.[170]Later on Akbar built two ships at Lahore in 1593 and

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167 Ibid., *1637-41*, p. 136.

168 Hamilton, I, p. 123.

169 *AN*, III, p 9; Shireen Moosvi, *People, Taxation and Trade*, p. 243; *EFI, 1618-21*, p.106.

170 Ibid., III, p. 195; Ad. 27247, f. 285b; Shireen Moosvi, *People, Taxation and Trade*, pp. 244-246.

1596.[171]This interest continued under other Mughal emperors also especially Jahangir, Shah Jahan and Aurangzeb. It was Jahangir during whose period Europeans established themselves in Surat by receiving royal farmans. He himself used to invest in the ships voyaging to Mecca. Shah Jahan, as Prince Khurram, took great interest in shipping, when he became governor of Gujarat, and he built and plied his own ships. The two famous ships owned by him were *Shahi* and *Ganjawar*. His interest continued after becoming Emperor also. Aurangzeb also took great interest in shipping especially in sending ships to Mecca. The *Ganj-i Sawai* was his ship whose seizure by the English is a well-known incident.[172] Other royal family members also used to invest in shipping such as Princess Jahan Ara and Prince Dara Shukoh etc. Nobles were also involved in shipbuilding and shipping.[173]

171 Ibid. III, pp. 651-2, 715-6; for its technological aspects see Irfan Habib, 'Akbar and Technology, pp.144-6.

172 Khafi Khan, pp. 421-22. See also 'Narrative of Philip Midleton, a Youth belonging to the ship "Charles" alias "Fancy" which delivered to Lord Justices, the 4th August 1696', in S. C. Hill, 'Episodes of Piracy in the Eastern Seas', pub. in *Indian Antiquary*, May 1926, pp. 225-26.

173 For detailed involvement of Mughal Emperors, Princes and Princess and nobles in shipping, see Shireen Moosvi, *People, Taxation and Trade*, pp. 243-274; and Satish Chandra, 'Commercial Activities of the Mughal Emperors during the Seventeenth Century', in *Bengal Past and Present*, vol. LXXXVII, July-December, 1959, pp.92-7.

CHAPTER 4

TRADE ROUTES

Mughal India, was a land of diverse geographical terrains, it contained vast portions of land consisting of plain, mountains, plateaus, desert, dense forests, and rivers and was almost surrounded by ocean on the three sides when it was on its zenith in terms of expansion. The peculiarities of the Mughal economy (as discussed in Chapter 1) necessitated presence of routes linking the villages with the towns and towns with each other and with ports. This chapter is thus dedicated to the description of the main land and river routes, also covering aspects such as types of land routes, their surface, various facilities provided such as *kos-minars,* avenues of trees on the sides, the halting places such as *sarais* (inns) on the routes and bridges and various fording places on the rivers to continue the land routes etc.; and types of rivers such as perennial and seasonal rivers.

Land Routes:

In Mughal India, land routes linked almost every corner of the empire. This network of routes had been developed partly for commercial needs and partly due to the military expeditions. Among these routes some were commercial as well as military routes whereas some were fully military i.e. due to strategic point of view or due to emergency, certain

routes developed which were not adopted by the merchants or were not used frequently.

In Mughal India, it is very difficult to stick to a single definition of the roads. In the different region of the empire due to the geographical conditions it developed differently, such as in Bengal embankments known as *Al*, served as roads.[1] Some were little more than tracks. On the other hand some roads were broad avenues generally having breadth of 40 ordinary paces, as were the imperial highways.[2]

Tavernier who travelled many times in India in the mid seventeenth century, found "the manner of travelling" in India "is not less convenient than all that they have been able to invent in order that one may be carried in comfort either in France or in Italy."[3] Earlier in 1615 Coryat noted about the imperial highway from Lahore to Agra, that "From the famous citie of Lahore I had twenty daies journey to another goodly citie, called Agra, through such a delicate and eeven tract of ground as I never saw before, and doubt whether the like bee to be found within the whole circumference of the habitable world."[4] However, the lack of ability in maintaining surface of the road was a big drawback. Even the imperial highway which went to the east from Agra to Patna was not fit for travel in the rainy season due to mud and water logging on the way it no more

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1 *Alamgirnama*, pp. 683-4, 944.

2 Mundy, II, pp. 83-4.

3 Tavernier, I, p. 32.

4 Coryat in *Early Travels*, p.244.

remained negotiable by bullock-carts which was the main means of transport for merchandise or others, on this route. The English factors have several complaints regarding the surface of the roads. In the 1620s, even by paying higher freight charges they could not send their merchandise before October.[5] In the 1630s Peter Mundy, who went to Patna in the rainy season, reported his experience in these words "It being tyme of Raines....wee arrived at Puttna....not meeting all the way one laden carte either going or comeing from thence, it being not then the tyme of Travell for Laden carts."[6] This shows that conditions of the roads in the raining season were too bad to travel at several stretches. Passing through Bhadohi, Mundy noted that " About 10 a Clock, wee were overtaken with a tirreble gust, for there was very much winde, aboundance of rayne, thunder and lightninge, Our Carts that tyme goeinge all the way upp to Axletree in water, soe that what through the Noyse of Elements overheard, and what the water made under us, with the rowlinge of the Carts, somtymes on the one side, sometymes on the other, sometimes upp over a banck, then downe againe into a pitt, with the Outcryes of Balloaches [Baluchis] and Carmen round about in saveing some Carts from Overturninge and haileinge [hauling] others out of some hole where they stuck fast, I takeinge one for my shelter att that tyme where there was a strange savour -- I say all teis severall occurringe together strooke into my fantasie [struck my imagination with] with the greatest resemblance of a sea storme aboard a Shipp for its

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5 *EFI, 1618-21*, pp. 268-9.

6 Mundy, II, pp.143-44.

continuance that ever had in my life on shoare." Again after passing Karamnasa river they had to face much trouble due to presence of much tough mire and marsh overgrown with a long kind of grass, that oxen were scarcely able to draw through, though it had not rained there for a month. He further noted that "if there had fallen any store of raine, as is usuall att this tyme of the yeare, there had beene noe passage att all, or not above one Course a day att the most."[7] Tavernier noted that, the route from Agra to Surat via Sironj and Burhanpur, was not passable even after two months of the rainy season specially due to the inundated rivers which used to cover the low roads at the fording or crossing.[8] The best description of the surface of the Indian roads came from the English Factors in 1666 that, 'In these countries here are no beaten roads or mending of highways'. And after the rainy season, the cart which passed these roads first had to face many hardships, as it had to cut its way through the mud for making the way for other carts.[9] On the other hand, it was also not easy to travel in the desert before the rain as wheels of carts used to stick in the sand and Mundy has to use series of oxen to draw cart out from the sand during his journey from Agra to Ahmadabad through the desert region.[10] In the Deccan and South India roads were at several places interrupted by high mountains, tanks, rivers, and many narrow and difficult passes that was the reason that

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7 Ibid., pp.125-26.

8 Tavernier, I, pp. 31, 50.

9 *EFI, 1665-67*,p.157.

10 Mundy, II, p. 298.

wheeled carriage were not used on large scale at least beyond Golkonda.[11] Those roads were mainly fit for oxen and pack-horses for the conveyance of men, and for the transport of goods and merchandise.[12]

However, we have references of beaten roads also in the Mughal empire, but these were only at few places. In 1580s Akbar made passable the Khyber Pass for carts by cutting solid rocks.[13] At Rawalpindi, on the Lahore-Attock road, where the road crosses through Margala Pass, it was cut through rock and six or seven yard broad road was strongly paved with bluish or grey lime-stone for three-quarter of a mile. A strong revetment of masonry defended each side of the work.[14] In 1666 Thevenot found a route cut out of rock quite smooth since it was paved with free stones and a 1.2 meter-high wall along the edge of the road, to protect the wheeled transport between Daulatabad- Elora.[15]Tavernier during his journey in Bengal, before entering the town of Rajmahal, found one or two coss of the roads leading to the town, paved with bricks.[16]

One of the important aspects of Mughal routes, which had attracted the travellers very much, was the lined avenues of trees on both sides of the

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11 Tavernier, I, 142.

12 Ibid.

13 *A'in*, II, p. 190; Irfan Habib, 'The Technology and Economy of Mughal India', *IESHR*, Vol. XVII, No. 1, p. 12.

14 Elphinstone, I, p. 102; Moorcroft &trebeck, II, 314-15;Burnes, I, p.70; Hugel, 226-7; For inscription printed and translated see *Indian Antiquary*, III, 1874, pp. 205, 265. See also Irfan Habib, *Atlas*, Map. 4B and p.12.

15 Thevenot, pp. 104-05.

16 Tavernier, I, p.102.

roads. In 1615 A.D., Coryat noted about those avenues of trees on the imperial highway from Lahore to Agra, in these laudatory words "Another thing also in this way being no less memorable then the plainenesse of the ground; a row of trees on each side of this way where people doe travell, extending it selfe from the townes end of Lahore to the townes end of Agra; the most incomparable shew of that kinde that ever my eies survaied."[17] Earlier in 1610, Finch noted the presence of avenues of trees on both sides of roads from Kabul to Agra planted by the order of Jahangir after the defeat of his rebelled son Khusrau. Jahangir himself noted that by the orders trees were planted from Agra as far as the river of Attok and he further ordered to make avenues in the same way from Agra to Bengal.[18]Terry who noted about the journey of Coryat after his death, in the same period, noted for the imperial highway from Lahore to Agra, a distance of four hundred English miles, that "and the rode-way on both sides all this long distance planted with great trees, which are all the year cloathed with leaves, exceeding beneficial unto travellers for the shade they afford in those climes. This very much extended length of way twixt these two places is called by travellers the Long Walk,..."[19] Thomas Roe, when

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17 Coryat in *Early Travels*, p. 244. It is very surprising that Coryat who was well acquainted with the roads of Europe, praised the Mughal road from Lahore to Agra, which was later testified by Tavernier who found in general 'the manner of travelling' in India 'not less convenient than all the arrangements for marching in comfort either in France or in Italy'.

18 *Tuzuk*, p. 277.

19 Terry in *Early Travels*, pp. 283-84.

describing about the provinces of Mughal empire, noted that "from Agra to Lahor beeing 320 Course which is not lesse then seven hundred mile. It is all a Playne and the high-way Planted on both sides with trees like a delicate walke ; it is one of the great woorkes and woonders of the world."[20] Tavernier, the frequent traveller in India in the mid of the seventeenth century, found "nearly all the way from Lahore to Delhi, and from Delhi to Agra, is like a continuous avenue planted throughout with beautiful trees on both sides, which is very pleasant to view;" but he showed displeasure for not taking care of the trees in these words "but in some places they have been allowed to perish and the people have not taken care to plant others."[21] On the roads from Agra to Bengal as Jahangir himself noted in his memoir, avenues of trees were also found.[22] Mundy who travelled in the 1630s found avenues of trees especially of trees of Neem, Pipal, Dhak, Bar, and others up to Allahabad on the road from Agra to Patna at a distance of 8 to 9 paces from each other and the distance between the two rows were 40 paces, which testifies the order given by Jahangir.[23] As so far the roads

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20 Roe, p. 493.

21 Tavernier, I, p. 78. On the map which accompanied the French edition of 1713 this avenue is represented.

22 *Tuzuk*, p. 277.

23 Mundy, II, pp.83-4, 86. However, Mundy during his further journey observed that there were less frequent and more spares trees on the sides of the roads, due to lake of care, some were dead, others had been felled, without having been replaced. But again he found rows of trees before entering Patna, which had disappeared so many days previously. (Ibid. p.92, 134). Manrique in 1641-2 also found trees on the routes especially near the villages on his journey from Bengal to Agra (Manrique, II, p.149).

from Agra towards Surat and Deccan were concerned, the roads passed trough the mountainous and plateaus containing bushes and jungles as well as from desert, but we have no information so far, regarding organised plantating of trees on the sides of roads in Mughal period.

Another feature of the Mughal roads almost throughout the empire was the construction of resting-places best known at that time by the name of *sarais* (inns) on the end of an ordinary day's journey or at every 10 kos.[24] These *sarais* were made by the order of emperor or sometimes by princes or by the imperial servants, or sometimes by the philanthropic personalities.[25] These *sarais* were generally built of stones or of bricks or thatched huts or even of mud. Some of them were in square like cloister in monastery and even some of them were built like palaces.[26] The *sarais* were mostly divided into dwelling rooms and the chambers for the attendants, especially *bhatyaras* and *bhatyarins*, who dressed the victuals for the travellers if they pleased only paying nominal charges for both men and animals.[27] Akbar ordered to establish the kitchens in the *sarais* on the high roads, for free distribution of food among the empty handed travellers so that after

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24 Withington in *Early Travels*, p. 225;Manrique, *Travels*, 1629-43 ,pp 99-100; Bernier, p.233; Manucci, I, pp. 114-5. For the use of wayfarers there are throughout the realms of the Mogul on every route many ' sarais ' (Ibid., p.67).

25 *A'in*, II, p.197; *Tuzuk*, p.7-8; *Early Travels*, pp. 225, 325; Steel and Crowther, p. 268; Pelseart, p.50; Manrique, II, p. 99; Bernier, 233; Manucci, I, pp. 67, 114-5; II, pp. 96.

26 Finch in *Early Travels* 179; Pelseart, p. 50; De Laet, p. 89; Mundy, II, pp. 78-79,89, 159; Tavernier, I, p. 45; Manucci, I, p. 67; Bernier, p. 233;Hamilton, I, p.117.

27 Withington in *Early Travels*, p. 225; Mundy, II, p.121 ;Manrique, pp. 101-102; Marshall, p. 117-8; Manucci, I, pp.114-5.

undergoing fatigue of journeying they might put food into their mouths without troubles.[28] However the travellers had to arrange for their bedding themselves.[29] These *sarais* not only provided the travellers and merchants resting places on the roads but also provided security to them. The gates were closed at sunset and opened only in the morning. Before closing and opening the gates the person deputed for this, cried loudly giving warnings to the travellers to look after their things. If anyone found that he had lost his things, the gate remained closed till the thing was recovered.[30]

In Mughal India, *kos-minars* were erected, especially on the highways. However we have earlier references for the existence of *kos-minars* in India also but the Mughal *kos-minars* were built on large scale with some special features.[31] The *kos-minars*, not only indicated the distance on the major roads, but also it indicated the directions and gave shelter to the travellers in certain cases. Arif Qandahari noted that the basic motto of the erection was to guide the traveller on the route in travelling to and fro in the day and night.[32] Bernier calls them 'small pyramids or turrets, erected from kosse to kosse, for the purpose of pointing out the different

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28 *AN*, III, p. 825.

29 Terry in *Early Travels*, p. 311. However, Terry also says that the travellers had to bring with them cook and other necessaries wherein to dress his meal, besides bedding, but we have several examples of persons who used to reside in the *sarais* such as bhatyaras and bhatyarins, whose sole duty was to serve the travellers (Mundy, II, p.121; Manrique, pp. 101-102;Tavernier, I, p. 45; Manucci, I, pp.114-5)

30 Bernier, pp. 233, Manucci, I, p. 67.

31 For detailed information on the milestones see Deloche, I, pp.149-159.

32 Arif Qandahari, p. 65.

roads'.[33] Among the Mughal emperors, Babur was the first who ordered for the measurement of the road from Agra to Kabul and ordered to erect a tower of 4 *qaris* high (24ft. or 36ft.) at every 9 *kurohs* or 13-14 miles, having a *char-dara* on the top. However these towers were not the *kos-minars* and their purpose was to facilitate the *dak-chauki*.[34]Akbar was the first who ordered in actual sense for the construction of *kos-minars*, during his journeys from Agra to Ajmer in the 19th R.Y.[35] On the road from Agra to Ajmer, a distance of 368 km, Archaeological Survey of India with other departments, found at least 110 *kos-minars*.[36] Similarly on the road of Agra-Delhi they found 34 *kos-minars* and on the Delhi- Lahore road they found 78 *kos-minars*.[37] On the road between Agra and Allahabad at least twenty *kos-minars* were found.[38] On the road of Agra-Lahore the *kos-minars* were

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33 Bernier, p. 284.

34 *Babur-nama*, II, p.629. According to A. S. Beveridge, the distance of 12 *qaris* is equal to 24ft. or 36ft. depending on the short or the long *qari* being meant. Beveridge further says that, Erskine makes 9 *kos* (*kurohs*) to be 13-14 miles, perhaps on the basis of the smaller *gaz* of 24 inches. Again by *char-dara*, he meant four-doored, open on all sides.

35 *AN*, III, p.156; Arif says that these *minars* were erected in A.H.981/1573A.D.(Arif Qandahari, p.66) . See Badaoni who laments that instead of these (*kos-minars*) he (Akbar) would had ordered gardens and *caravansarais* to be made. (*Muntakhabu-t Tawarikh*, Vol. II, ed. Ali Ahmad and Lees, Bib. Ind., Calcutta, 1865, p.176);Withington in *Early Travels*, p. 225.

36 *Annual Progress Report for the Northern Circle, for the Year ending 31st March 1914*, of the Archaeological Survey of India, pp. 45-7.

37 *Annual Progress Report*, pp. 48-51.

38 Montgomery, *Statistical Report of the district of Cawnpoor*, 1849. 83, No. 374, 103, No. 471, 108, No. 487; *Annual Progress Report*, 1917-19, pp. 78-9;see also Deloche, I, p.155.

constructed by the order of Jahangir in the 14^{th} R.Y. or in 1619-20, that the officers should erect a pillar at every *kos* to be sign of a *kos*.[39] According to Manucci, Jahangir also ordered to construct those one on the Agra-Allahabad road.[40] These *minars* were made of bricks or stone covered with plaster and were of different types.[41] These *minars* differed in shape and size in the different regions. On the Agra-Lahore road from the surviving *minars*, it appears that they were columns of cylindrical form, on octagonal bases and the height was from 6 to 10 metres.[42] On the Allahabad road they were simply in the shape of truncated cones, pierced at the top to allow the passage of fire provided by a lighting device installed in the interior and of height from 3 to 8 metres.[43]

Another convenience provided on the Mughal highways was the presence of wells and tanks for water for the travellers. Almost all the *sarais* contained wells. Mughal emperors especially Jahangir, took great interest in this philanthropic work and ordered for the digging of wells on

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39 *Tuzuk*, p. 277; *Iqbalnama-i-Jahangiri*, p. 127; Sir Sayid found recess on each minar near Delhi, perhaps for the stone containing serial number of the *kos* (*Asar-us-sanadid*, reprint, 1992, p. 342). However Irfan Habib doubts that the *kos-minars* were built by the order of Jahangir on the Agra-Delhi-Lahore route, as the earliest record of their actual existence on this highway belongs to the early years of Aurangzeb's reign and he says that it is very likely that the *kos-minars* on both sides of Delhi were set up by Shahjahan while he was building his new capital of Shahjahanabad at Delhi (Bernier, p.284; Thevenot, p.57. Cf. Irfan Habib, *Agrarian System*, pp.414-15).

40 Manucci, I, p.164.

41 Subhash Parihar, *Land Transport in Mughal India*, p. 14.

42 *Annual Progress Report*, 1914, Pl. 44, 45.

43 D.G.U.P.O., Vol. XIX, Cawnpore, 86.

the routes. Jahangir after ascending the throne, ordered the *jagirdars* of neighbourhood to build *sarais* and dig wells; and if the area was under *khalisa* i.e. in the direct imperial administration, the *mutasaddis* were ordered to do this work. And in the next edict he ordered to utilise the properties of those persons who died without any heir, in digging the tanks and wells, besides in the other philanthropic works such as building of mosques, *sarais*, repairing the broken bridges etc.[44] Again in the fourteenth regnal year, he ordered to dig wells at distance of three *kos*, on the route from Agra to Lahore.[45] Bernier, during his journey from Agra to Delhi, met frequently with wells, which afforded drinking water to the travellers and served waters to the young trees as well.[46]

The land route cannot be continued if there is no system of crossing the rivers. There were number of rivers which hampered transportation. To overcome the problem of crossing the rivers the travellers and merchants used several methods, which were used by earlier people also, and those were fording, ferrying and crossing by the bridges of various types. It was not easy to bridge all the rivers, therefore if any river was not bridged, then the river was crossed by fording or ferrying. Most of the route had a fording or ferrying point on the river which the regular transporters knew very well. For example the Sindh River on the Lahore-Kabul route was ferried at Attock Banares and the Narmada river on the Agra-Surat route was crossed

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44 *Tuzuk*, p. 4.

45 Ibid., p.277.

46 Bernier, p. 284.

at Handiya if one went via Narwar and if one went via Sarangpur, Ujjain or Malwa, it was crossed at Akbarpur.[47] The small rivers were usually forded at the place where there was less water and the surface below used to be plain, but even those fordable rivers, used to become non-fordable in the rainy season, which ultimately hampered the transportation in that season. The administration appointed experienced men on the fording and ferrying places, who were accustomed to settle down the every problem aroused in fording or ferrying and took care that the fording places were not overcrowded, too narrow or very uneven or full of mud. He further used to regulate the number of passengers which a ferry might carry. Besides other duties he was sought to prevent the merchants or travellers, from crossing the rivers at places other then the fording or ferrying places and not to allow them to cross at night unless in case of necessity. At ferrying places merchants and travellers had to give certain fixed tolls for crossing, such as, during Akbar's period, a laden cart was charged 4d. (*dam*) and empty one 2d.; a laden camel, 1d., empty camels, horses, laden cattle, ½ d. and unladen, ¼ d.; other beast of burden used to pay 1/16d., which included the tolls due by the river. Twenty people had to pay 1d. for crossing, but they were often taken gratis. One-half or one-third of amount thus collected used to go to the state and the remaining to the boatmen. [48] In the second half of seventeenth century Tavernier also noted the presence of *darogha*, who allowed none to pass without order and used to take the note of the

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47 Jourdain, p. 147; Mundy, II, p. 54.

48 *A'in*, I, pp. 144-5.

kind of merchandise carried, each wagon was charged four rupees and a chariot was charged one rupee, without counting the boat, for which it was necessary to pay separately. However, duty was not collected on personal property and it was collected only on merchandise before embarking in the boat for crossing the river.[49]

So far as bridges on the routes in the Mughal empire are concerned, they were designed mainly to facilitate cart-transportation and spanned besides the smaller streams, rivers like the Degh, the Gomti and Sindh (Central India). Over larger rivers like Jamuna, bridges of boats were built as the architectural technology of the time were apparently unable to attempt masonry construction on the requisite scale. However Mughal Indian masonry bridges were built very strong but had a notable fault of consistent failure to allow for a sufficiently wide passageway for water. In fact Mughal Bridges had massive piers and narrow arches, which always tended to subvert the bridges by driving the channel to a new course, out flanking the bridges. To overcome this situation bridges were subsequently extended, but this extension often met the fate of the original construction.[50] I have tried to present a list of some of the bridges mentioned by travellers and other accounts, found on the important routes of Mughal empire in form tables, while discussing any particular route; as a detailed study of those bridges are not possible in this study.

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49 Tavernier, I, pp. 96, 98, 99.

50 Cunningham, *Arch. Sur.*, XI, p.122; Irfan Habib, 'The Technology and Economy of Mughal India', pp. 13-14.

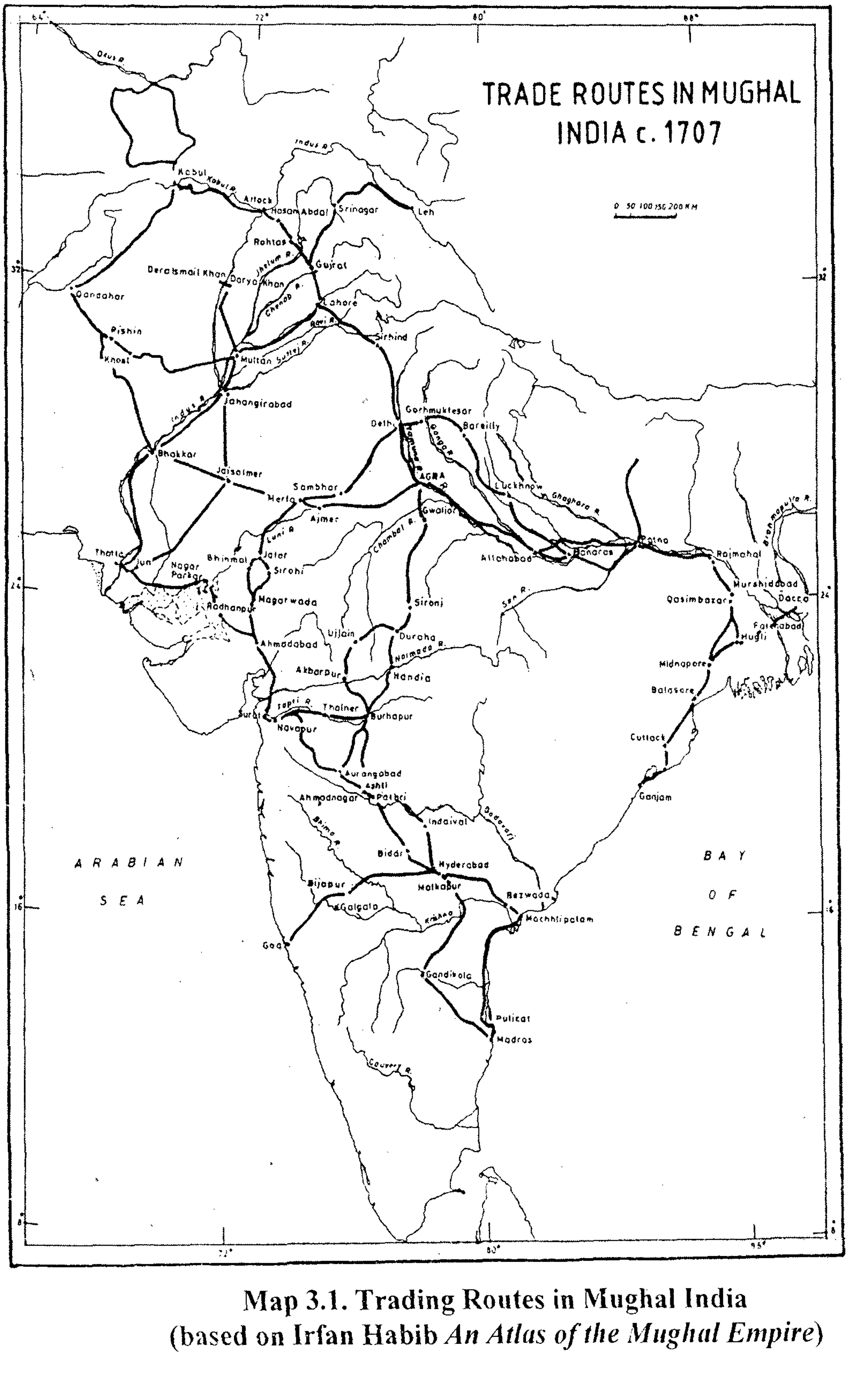
However it is not possible to give detail of each and every route running in the Mughal empire due to presence of large number of routes, therefore, here details of only those routes have been given which were used for trade and were most frequented. It is also not possible to furnish details of all the routes taking one centre as the originating point, therefore, I have taken important trading centres of Mughal period as the originating point for the convenience of understanding. Such as Agra was that town through which most of the commercial routes passed. On the western coast Surat was the main centre of trading. (See Map.3.1: 'Trading Routes in Mughal India' for various important routes in Mughal India).

Agra-Surat Route:

Among the most important land routes were the routes between Agra and Surat, which linked the vast hinterland with the major ports and the commercial capital Agra with the most commercialised region (*suba* of Gujarat), of the empire and further extended to Deccan.

From Agra for Surat there were mainly two routes (as shown on the accompanying Map.3.2). One of these went through the forest and mountainous regions, on which main stoppages were Gwalior and Burhanpur and other one went through the desert regions, on which the main stoppages were Ajmer and Ahmadabad.[51] The route through forest and mountainous regions, especially through Malwa plateau and part of Bindha

[51] Tavernier, I, p. 31.



Map 3.1. Trading Routes in Mughal India
(based on Irfan Habib *An Atlas of the Mughal Empire*)

through Sunera, Ujjain, Akbarpur etc. and crossed Narmada at Akbarpur.[54] However, *Chahar Gulshan* has not shown Mandu and Sarangpur on the route, which earlier Finch and Jourdain had passed through.[55] The branch via Narwar was shorter than the branch via Sunera, Ujjain etc.[56] Between Thalner and Nimgul, main route went through Tekvada and between Dhaita and Khedka, it went through Navapur and from Vyara, it went through Valod etc.[57] However earlier, Finch, Jourdain and Roe, diverged from this later route, during their visit to Agra and went through Kobad to reach Vyara and to reach Dhaita they went through Narayanpur, instead of Navapur and between Nimgul and Thalner, they went through Sindkheda, instead of Tekvada.[58]This route crossed many rivers, of them at lest were five bridged, and at least three of them were built by the Mughal emperors themselves. Table-4.1 provides details of these at glance.

Table-4.1: Bridges on Agra-Surat Route, via Burhanpur.

Places at	River	Bridges of/built by	Period	Reference
Jajau	Utangan	Stone/Jahangir	Jahangir	Mundy, II, p.64-5; Tavernier, I, p. 53; CG, f.137a.
SE. of Dholpur	Kunwari	Masonry	-	Tavernier, I, p.53.
Maharajapur	Asan	Masonry	-	*Arch. Monuments in Madhya Bharat*, No.929, p.75; *Atlas*, p.31.

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54 Finch in *Early Travels*, pp. 139-43; Jourdain, p. 146-150; CG, f.136b.

55 CG, f.136b.

56 Irfan Habib, *Atlas*, p. 38.

57 Mundy, II, pp. 39-47; Tavernier, I, pp. 40-41. However, between Nimgul and Thalner, Tavernier went through Sindkheda, and not through Tekvada. Irfan Habib, *Atlas*, p. 25.

58 Finch in *Early Travels*, pp. 133-146; Jourdain, pp.141-53; Roe, I, pp.86-89, 100-105.

Nurabad	Sank	Stone	1660/1661,Aurangzeb	Cunningham, *Arch.Sur.Reports*, II, p. 397; *Atlas*, p.31; *Deloche, Bridges*, p. 42
N. & S of Narwar	Sind	Two Masonry bridges/ one built by Shaista Khan	Aurangzeb	Manucci, II, p.322; Cunningham, *Arch.Sur.Reports*, II, pp. 325-7.

The route through desert ran mainly through Bayana, Ajmer, Merta and Ahmadabad etc.[59] However, leaving the route towards Ajmer, at Bander Sindri one could reach Ahmadabad without touching Ajmer. This section joined the Ajmer-Ahmadabad route at Merta passing through Kuchhel, Bharunda etc.[60]The route further passing through Aravali Range, branched into two at Jalor and rejoined at Magarvada. The eastern branch through Sirohi was fit for both carts and camels.[61]The western branch, which passed through Modra, Bhinmal, Dantivada etc., was a shorter route and was fit for camels only.[62]

As far as conditions of routes are concerned, the route via Gwalior and Burhanpur, had to be closed almost for four months during the rainy season due impassable roads and the rivers which were mostly not bridged got excess water and created problem in fording or ferrying.[63] While the

59 Jourdain, pp. 167-71; Mundy, II, 225-98; Tavernier, I, pp. 54-73. However, Tavernier did not touch Ajmer. See also *Waqai-i Ajmer*, for the Merta-Dunara section (pp. 169, 300, 331, 440)

60 Tavernier, I, pp. 72-73.

61 Mundy, II, pp. 249-50, 261; Finch in *Early Travels*, pp. 170-73.

62 Ibid.,; Tavernier, I, pp. 71-72; *Mirat* (Supl.), p. 176.

63 Tavernier, I, p. 31. 'I was compelled to remain two days in this place, because there is river to cross , which instead of becoming lower, increased from hour to hour on account of the rains which had fallen during three or four days, so that I had to

route via Desert regions was generally open throughout the year, even during the rains, as the whole region was composed of sand which got consolidation after the rain.[64] However the later route had scarcity of water at various places.[65]

On both of these routes pack oxen, pack camels as well carts as major means of transport carried on mainly indigo, sugar, saltpetre, foodstuffs, Bengal silk etc.[66]

Delhi-Ajmer-Ahmadabad: The main route from Delhi towards Ahmadabad ran through Ajmer. Main stages on this route upto Ajmer were Pataudi, Rewari, Kot Putli, Amarsar, Sambhar, Sursara, Untra etc.[67] After Ajmer the stages were same as of the Agra-Ajmer-Ahmadabad road. However one could travel in that direction without touching Ajmer. The route without touching Ajmer, left the main route at or after Sambhar and

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cross it half a league lower down. You always strive to cross this river by ford, because in order to reach the boats it is necessary to unload the carts and coaches, and even to take them to pieces, so that they may be carried by hand for the whole of this half-league of road, which is the worst that it is possible to conceive. It is all covered with great rocks, and confined between the mountain and the river, so that when the waters are in flood they cover whole road, none but the people of the country being able to traverse it.'(Ibid. p.50); *EFI, 1646-50*, p. 146.

64 Ibid., I, p. 31; Mundy, II, p. 298.

65 Mundy, II, pp. 249, 250, ff.

66 European Factory Records are full of evidences for these. Such as *Letters Recd.* Vol. IV, p. 252; Vol. VI, p. 236-38; *EFI, 1618-21*, pp. 47, 51, 73-74, 90, 102, ff; *1624-29*, p.235-6; 1630-33, pp. 83, 136, 215, 216, ff.; *1642-45*, p.136; Pelseart, pp.15, 18, 19; Mundy, II, pp. 55-6, ff; Tavernier, I, pp. 32-33, ff.; II, 2; *DFI, 1624-27*, Vol. 2, pp. 342-43.

67 CG, f.139b.

from that place the route going through Bharunda, joined the main route again at Merta.[68]

Agra- Lahore-Kabul/Multan/Bhakkar-Qandahar route:

Other most important land link was the route between Agra and Qandahar, which facilitated the overland foreign trade of the Mughal empire to a great extant.

From Agra to Lahore the main route went upto Delhi through two routes one via Sikandra, Mathura, Akbarpur, Hodal, Palwal, Ballabhgarh, Faridabad, etc.[69] And other one via Sarai Nim, Sikandara Rao, Akrabad, Kol (modern Aligarh), Chandaus, Khurja, Adh, Sikandarabad, Tilbegumpur, Chhelera, Patparganj, Shahdara etc.[70]

From Delhi the route went through Narela, Sonepat, Panipat, Karnal, Thanesar, Shahabad, Ambala, Sarhind, Doraha, Ludhiana, where it crossed Sutlej River, Nakodar, Sultanpur, Govindwal, where it crossed Beas River, Naurangabad, Sarai Amanat Khan etc.[71]

From Lahore there emanated two important routes, one of those went directly Qandahar via Kabul (A) and other one went through *suba* of Sindh, which facilitated to the ports of that *suba* as well and from Multan (B) and Bhakkar (C) went to Qandahar also.

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68 *Waqai Ajmer*, 137, 253. Irfan Habib, *Atlas*, Sheet 6B & p. 20.

69 Finch in *Early Travels*, p.155; Tavernier, I, p. 85; *Miratu-l Haqaiq*, ff.132b, 139a; CG, f. 137b.

70 CG, f. 141b; Bernier, p. 241; Irfan Habib, *Atlas*, p. 31.

71 CG, f. 138a; Sujan Rai, p. 76; Tavernier, pp. 77-78.

(A). Lahore – Kabul - Qandahar: The route from Lahore ran via Shahdara, Eminabad, Wazirabad, where it crossed the Chenab River, Gujrat, Khwaspur, Jhelum, where it crossed Bihat (Jhelum) River and branched into two, first one the main highway went through Ribat, Rawalpindi, Margala Pass, Hasan Abdal etc. and other one went through Rohtas, Nilab etc. and met near Attock where it crossed the Nilab or Indus, which before Akbar was generally ferried at Nilab but due to construction of fort at Attock, the ferrying place shifted to Attock. After crossing Attock, the route went via Khairabad, Nawshera, Peshawar, Jamrud, Khyber Pass, Dakka, Basawal, Jalalabad, Nimla Pass, Gandmak, Surkhab, Jagdalak, Khwurd Kabul, Butkhak etc. to reacxh Kabul.[72] Table-4.2 gives a summary information on the bridges on this route.

Table-4.2: Bridges on the Agra-Kabul Route via Lahore

Places at	River	Bridges of/built by	Period	Reference
Faridabad	Over nullah of Faridabad	Stone/Bhakhtawar Khan	Aurangzeb	*Miratu-l Alam*, f.252; *Atlas*, p. 31.
S. of Delhi (near Humayun's tomb)	A previous arm of Jumna	Masonry/Miharban Agha	Jahangir	*Early Travels*, p. 156;Manucci, I, p.119;Carr, pp.209-10.
N. of Delhi	Nahr-i Bihisht	Stone/Bhakhtawar Khan	Aurangzeb	*Miratu-l Alam*, f.253a
Karnal (at Sarai-i pul)	A canal cut from the Jumna	Stone	Akbar	Monserrate, p. 98; CG, f.138a, *Atlas*, p.12.
Nakodar	White Bein	Akbar	Akbar	*Tuzuk*, p.64; A.S Report, XIV, p.57.
Sultanpur	Black Bein	Two bridges	Jahangir/Aurangzeb	Steel &Crowther, Purchas, IV, pp.267-8; A.S Report, XIV, p.57; Deloche, *Bridges*, p.47.
N. of Lahore	Degh	Masonry/ Shah Daula	Shahjahan	Waris, 194; Sujan Rai, p. 74, *Chronicles*

72 *AN*, III, pp. 359-61, 367; *Tuzuk*, pp. 49-51, 59;Sujan Rai, pp. 77-78, 85, 88; CG. f. 138b-139a; Lahori, II, p. 603; Tavernier, I, pp.76-77.

				of Gujrat, pp. 58-9;Cf. Atlas, p.12.
N. of Lahore	Bagh Baccha	Masonry/ Shah Daula	Shahjahan	Waris, 194; *Atlas*, p.12.
Gujrat	Arm of Chenab	Masonry /Shah Daula	Shahjahan	Sujan Rai, p.74, *Chronicles of Gujrat*, pp. 18-19; IG, 1908, XII, p. 373.
Margala	Kalapani	Stone	A.H.1083/Aurangzeb	Moorcroft, II, p.315; Hugel, p. 226-7.(Hugel mentions two bridges at Margala).
Peshawar	Bara	Masonry	Shahjahan	Inscription, S.M. Jafar, *Peshawar, Past & Present*, 1945, pp. 114-15.
Gandmak	Over a rivulet	Masonry	Shahjahan	Moorcroft, II,p. 370.
Surkhab	Surkh	Masonry	Shahjahan	Moorcroft, II,pp.370-1, Thornton, *Gaz. Of the Countries adjacent to India*, vol. II, p.249.

From Kabul for Qandahar, the main route went through Charasia, Safed Sang, Deh-i Nau, Sujawand, Haft Asia, the Sher-dahan Pass, Gaznin, Muqur, Hala Ribat, Sar-i-Asp, Qalat, Shahr-i-Safa etc.[73]There was an alternative route from Kabul, which joined the main route near Sujawand. Abul Fazl writes that once Humayun took this route from Qandahar to Kabul.[74]

So far as conditions of route are concerned, between Agra and Lahore, it was the best route of the Mughal empire.[75] Route between Lahore and Kabul passed through some troublesome passes such as Margala,

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73 Waris, 91-92; CG, f. 140a-141b. Tavernier, gives stages for Qandahar-Kabul route upto Gaznin (?) in detail, then beyond that he did not gave stages upto Qandahar (Tavernier, I, p. 74).

74 *AN*, I, p. 243.

75 Terry in *Early Travels*, p. 244.

Khyber etc. The Khyber Pass was not suitable for carts before Akbar, who took great interest in making it passable for them by cutting the stones and paving the way.[76] Between Kabul and Qandahar there was scarcity of fodder for animals and in the months of July and August a hot wind prevailed, which used to suffocate and kill suddenly, being of the same kind as prevailed in certain parts of Persia and in certain seasons near Babylon and Mosul also.[77]

(B) Lahore-Multan-Qandahar: From Lahore the main route ran almost along the southern side of Ravi River up to Sarai Sidhu and then along the river Chenab. The main stages on this route were Naushahra, Sadghara, Harappa, Chichawatni, Tulamba, Sidhu etc.[78] From Multan two routes headed towards Qandahar. One ran through high mountains, via Sakhi Sarwar, Chacha, Chotiali, Duki, Shikota, Harnai, a narrow pass before Khost, Khost, Abdun, Fushanj or Pushing or Pishin etc.[79]

Other one ran via Karor, Patti Ghazi Khan, Behal, Chhina, Darya Khan, ferrying Indus before Dera Ismail Khan, Maruf etc. [80] However stages between Dera Ismail Khan and Maruf have been given in *Chahar Gulshan* but the places have not been traced so far.[81]

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76 *A'in*, II, p.190.

77 Tavernier, I, pp. 74-75.

78 CG, f. 139b; Steel & Crowther, Purchas, IV, p. 269; De Laet copied the same stages from Steel and Crowther, between Lahore and Multan, p. 69.

79 Steel & Crowther, Purchas, IV, p. 270-72; Manrique, II. pp. 255-59; Waris, 181, 217-20.

80 CG, f. 140b-141a.

81 Irfan Habib, *Atlas*, p. 12.

However, Agra- Qandahar route via Multan was shorter than the route through Kabul, but it mostly passed through barren and desert regions.[82] There was scarcity of food and fodder for animals and travellers as well.[83] Water on this route was generally scarce, sometimes for three or four days merchants had to travel without water and if found it was brackish and undrinkable.[84] The pass near Khost was so narrow that a few could stop the passage by putting stones.[85]

(C) Multan-Bhakkar-Qandahar: From Multan the Lahore route further headed towards Bhakkar which ultimately reached to Qandahar in one direction and Thatta in another direction (D). The main stages between Multan and Bhakkar were Jalalpur, Shuja'atpur, Janpur, Ubaoro, Bela, Adalpur, Sultanpur, Dabar Wahan, Lohri or Rohri etc.[86] From Bhakkar towards Qandahar the route ran via Sukkar, Siwi, Dadar, Shal (Quetta) etc. This route met after Fushanj/Pishin with the route from Multan for Qandahar. On this route travellers had to depend on for directions in the night on stars, as it passed through uninhabited areas of waste lands.[87]

Major means of transport on the route from Agra to Lahore were carts whereas on the routes from Lahore to Qandahar were camels. Indigo,

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82 Tavernier, I, p. 73.

83 Steel & Crowther, Purchas, IV, pp.270-272.

84 Ibid., p.270; Tavernier, I, p. 73.

85 Ibid., p. 271.

86 CG, f. 140b.

87 Mir Masum, *Tarikh-i Sind*, ed. U. M. Daudpota, Poona, 1938, p.30; *Mazhar*, pp. 26-27; Waris, 216.

cotton, cotton goods, yarn, sugar, etc. were major commodities to be transported on these routes.[88]

(D) Bhakkar-Thatta: From Bhakkar, the Lahore route in the southern direction went upto the town of Thatta. The main stages on this route were Gambat, Khandiaro, Derbela, Halakandi, Nasarpur, etc.[89] However on this section Indus river played more important role in transporting merchandise than the land route.[90]

Ahmadabad-Thatta: Ahmadabad was linked to Nagarparkar and thence to Thatta. Withington in 1610-11, tried to visit Thatta, however he could not reach Thatta and was robbed and had to return to Ahmadabad. The main stages on the routes were Kalol, Kadi, Dekwada, Vanod, Radhanpur, Nagarparkar, Jun ('Juno') etc. However beyond Nagarparkar, the stages are not traceable, the route apparently joined the Jaisalmer-Thatta route at Jun. As the route passed through the Rann, there were scarcity of fresh water all the way and even in the two well that Withington found on the way, water was saline and could not be used for drinking. The caravan had to stay in the open field at night. The route could be traversed on camels and horses.[91]

Thatta- Jaisalmer-Ajmer-Agra: The route from Thatta towards Jaisalmer, ran most probably through Jun, Umarkot etc. As the route passed through

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88 Steel and Crowther, pp.266-73, especially 269; Pelseart, p. 15, 30-32; Manrique, II, p. 248.

89 CG, f.140a.

90 *EFI, 1634-36*, pp. 130-31; *1637-41*, pp. 137, 198.

91 Withington in *Early Travels*, pp. 208-17; Irfan Habib, *Atlas*, Maps 5B and 7B & pp.16, 25.

the desert, water was scarce and if found was mostly brackish.[92] Further journeying on this route via Ajmer, Agra was reached. For Thatta, from Agra, the route via Jaisalmer was nearer then the route via Lahore and Multan.[93] This route was mainly fit for camels as means of transport.[94]

Jaisalmer-Multan: Manrique, in 1641, during his journey towards Qandahar, went Multan from Jaisalmer, but he does not mention the places on the route.[95] From the Atlas it appears that the route joined the Multan-Bhakkar route, but exactly at which place, is not certain.[96]

Jaisalmer-Bhakkar: Jaisalmer, was also directly linked through desert with Bhakkar.[97]

Lahore-Sirinagar: The routes to Kashmir not only facilitated the links between this most frequented pleasure resort of the Mughal emperors, but it also linked the Mughal empire with the other parts such as Lesser Tibet and Great Tibet etc. (A), beyond Kashmir. According to Abul Fazl, there were at least 26 passages to Kashmir. But he himself accepts that those by Bhimbar and Pakli were the best and were generally practicable on horseback. The route through Bhimbar was the nearest and it could be traversed via several routes, of which three were good viz., (1) Hasti Bhanj, which was the former route for the march of troops; (2) Pir Panjal, through

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92 Manrique, II, p.241; Irfan Habib, *Atlas*, Sheet 5B & p.16.

93 Pelsaert, p. 32; *EFI, 1634-37*, pp.137-38.

94 *EFI, 1634-37*, pp.137-38.

95 Manrique, II, p.243.

96 Irfan Habib, *Atlas*, Sheet 4B & p. 12.

97 Joseph Salbancke, '*voyage*' *1609*, *Purchas his Pilgrimes*, III, p. 84.

which, Akbar thrice visited Kashmir and (3) via Tangtala.[98] Route through Pakli and Bhimbar remained the favourite route of the Mughal emperors. Through Pakli, one could visit Kashmir in the beginning of the spring season, which despite being the longest route and having ups and down and troublesome passes etc. had less snow, and was warm, which accelerated the journey and through Chumak one could visit during mid spring, which had also less snow but after the rain, travelling on this route was troublesome. Through Punch one could visit during the end of the spring, which had snow in considerable quantity and via Pir Panjal, which was the shortest route, it was not possible to visit Kashmir during the spring season, because it was almost covered with snow.[99]

Branched from the Lahore-Kabul route at Gujrat, the main stages on the route via Bhimbar and Pir Panjal were Daulatabad, Bhimbar, Naoshera, Chingas, Rajauri, Laha, Thana, Ratan Panjal Pass, Baramgala, Pushiana, Pir Panjal Pass, Hirapur, Khanpur, Panpur etc.[100]This was the main route for Kashmir, but was not free from troubles. When Akbar decided to visit Kashmir, he ordered Qasim Khan to level the ups and down of the roads

98 *A'in*, II, p .169; *AN*, III, pp. 557-60.

99 Lahori, *Padshahnama*, I, ii, p. 15-16; *Alamgirnama*, p. 820-21. Jahangir also noted that route through Bhimbar and Pakli were the best and by Bhimbar the route was shorter then by Pakli. But if one wanted to see the spring in Kashmir he was confined to visit by Pakli, as other routes at that time were blocked with snow (*Tuzuk*, p.299).

100 This route to Kashmir has been described frequently in contemporary sources such as *AN*, III, pp. 537-42; *Tuzuk*, pp. 315-17; Lahori, I, part ii, pp.15-21; *Alamgirnama*, pp. 820-7; CG, f. 139a.

with the help of three thousand stone-cutters, mountain-miners, splitters of rock and two thousand diggers (*beldars*).[101] Despite of these arrangements Abul Fazl complains about the troubles at several stages. Ravines of Ghazilkot between Naoshera and Serai Chingiz were traversed with difficulty. During crossing the Ratan Panjal Pass 'which was high as heaven' special bay horse of Akbar slipped and no trace of that could be found. Many persons climbed the pass on foot. Further he summarised the troubles during the journey towards Kashmir that, from Bhimbar to Hirapur there was continuous range of hills which for narrowness and difficulty, and for ascents and descents, was unrivalled.[102]

Once Jahangir visited Kashmir through the route that branched from the Lahore-Kabul route at Hasan Abdal and went via Salhad (Salhar or Sarhad) and Barahmula, but not free from the tortuousness of the path. The main stages on the routes between Hasan Abdal and Barahmula were Sultanpur, Salhad, wooden bridge on Nainsukh River, Pim Drang Pass, 'of great height, ascent being 1 kos, and the descent 1 ½ kos', Kishan Ganga River, Bolyas, Bolyas Pass, Kuarmat or Kuarmast Pass, most difficult pass on this route etc.[103]The route between Bolyas and Bolyas pass was almost unparalleled for difficulty, narrowness, height and hollows.[104] Between Barahmula and crossing at Kishan Ganga, the route ran along the Bihat

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101 *AN*, III, pp. 537-38, 548.

102 Ibid. p.541.

103 *Tuzuk*, p. 289-294; *AN*, III, p. 557-60, 564; CG, f. 139b.

104 *AN*, III, p. 559.

River. Earlier Akbar in returning from Kashmir, travelling the same route from Barahmula, left it after crossing Nainsukh River, and joined Lahore-Kabul route at Hasan Abdal by marching down Pakli proper, or the Siran valley. However places mentioned in *Akbarnama* of Abul Fazl for this route, cannot be identified.[105] For travelling between Barahmula and Srinagar both Akbar and Jahangir used boats.

So far as bridges on these routes are concerned, on the Lahore-Kashmir route via Hasan Abdal, Baramula, there was one wooden bridge over the river Nainsukh and other one over the river Kishanganga.[106] There were four stone and wood bridges over the Bihat river at Srinagar.[107] However Lahori the official historian of Shahjahan, added that there were in all 10 such bridges over the Bihat River in Kashmir, but Bernier noticed only two such bridges.[108] (For bridges between Lahore and Hasan Abdal, see Table-4.2).

Through the above routes Kashmir exported saffron to Agra and other parts of India and imported salt, pepper, opium, cotton and yarn, mainly upon mules, indigenous horses and upon man's head.[109]

(A) Srinagar- Lesser Tibet (Skardu and Shigar) and Srinagar-Greater Tibet (Leh): After a military expedition in 1638, Mughal suzerainty over

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105 Ibid., III, pp. 560, 564; Irfan Habib, *Atlas*, p. 7.

106 *Tuzuk*, pp. 291-92.

107 Ibid., p. 298; Lahori, *Padshahnama*, I, ii, p. 23.

108 Lahori, *Padshahnama*, I, ii, p. 23; Bernier, p. 398.

109 *Tuzuk*, p. 300,301, 315; Pelseart, pp. 35-36; Bernier, p. 392; Irfan Habib, *Agrarian System*, p. 80.

Lesser Tibet was established.[110] From Kashmir (Srinagar), Skardu and Shigar could be reached by two routes, one via Gurach (Gurais) and other one via Lar. On the route via Gurais, there were high mountains and narrow passes that not more then one rider could pass trough it, but in comparison to route through Lar had less snow and took less time.[111] The route through Lar was shorter and part of this route lied under snow. On this route, about 30 kos from Srinagar, there was a very elevated pass, with difficult, narrow, and sharp ascent.[112] From Lesser Tibet one could go beyond the Mughal empire towards Yarkand and Kasghar etc.[113]

The Greater Tibet came under the Mughal suzerainty fully in 1665.[114] From the journey of I. Desideri (1715) it appears that the Srinagar-Leh route was quite clear, but unfortunately he did not mention name of the places on the route. Zoji-la was the principal pass on this route.[115] From Leh, Lahasa in Central Tibet and Yarkand and Kashghar etc. could be reached.[116]

110 Ibid., pp., 281-8.

111 Ibid., pp. 286-7;Bernier, pp. 426-7.

112 Ibid.; *Atlas* says that the elevated pass must be Zoji-la (*Atlas,* p.7).

113 Bernier, p. 426-7.

114 *Alamgirnama*, pp.920-2; *Atlas*, p. 6.

115 Desideri, pp. 74-8.

116 Ibid. pp. 81-2, Cf. Wessels, *EJT*, pp. 215-17; Mirza Haider Dughlat, *Tarikh-i Rashidi*, tr. N. Elias & E. Denison Ross, London 1895, p. 417-18, 464-5, Cf. Irfan Habib, *Atlas*, p. 7.

ROUTES TOWARDS EAST

Towards East there led many routes from Agra and Delhi. These routes carried brisk trade in raw silk, sugar, calicos and even in foodstuffs such as rice, wheat and butter etc.[117] Agra-Patna route via Allahabad, Banares, Buxer, etc. was almost closed in the rains due to mud and pits on the road. On these routes oxen as pack animal as well as cart-drawer, formed the major means of transport.[118] (See Map 3.3)

Following were the routes which contributed much to flourish trade and communications.

Agra-Allahabad-Patna: From Agra, after crossing Jumna, the main route passed through Itimadpur, Firozabad, Etawa, Sikandra, Chapparghata, Kora, Allahabad, Banaras etc.[119] From Allahabad the main route went through Banaras, which diverged into two independent routes at Banaras and met just before Patna. One of these branches went northward through Saidpur, Ghazipur, crossed Ganga River before Buxer, Buxer, Ranisagar, crossed Son River before Bishambharpur, Bishambharpur etc. and reached Patna.[120]

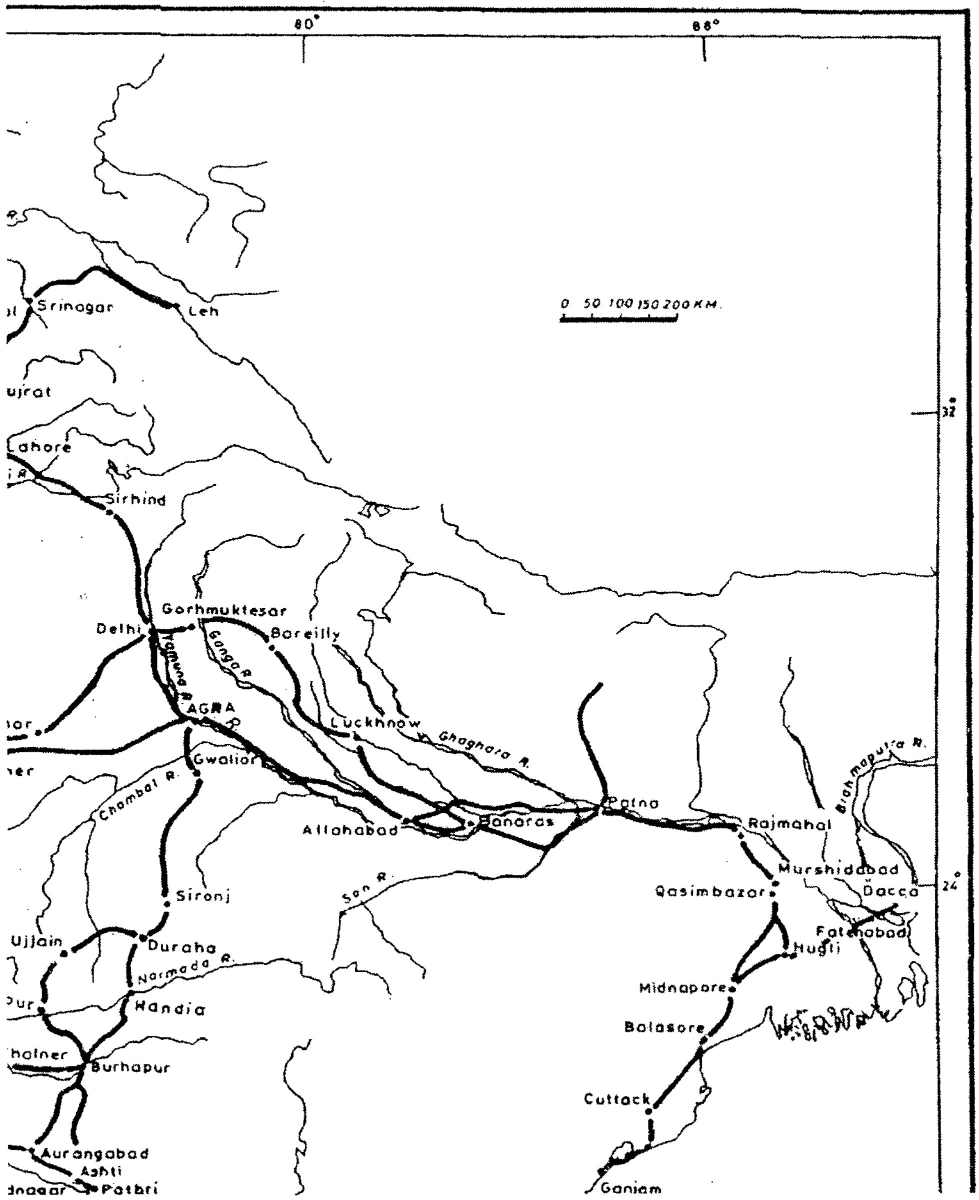
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117 *EFI,* 1618-21, p. 192-93, ff.*1637-41,* pp.93, 278; 1646-*50*, pp.56, 78, 189; Pelseart, 4-5, 9; Mundy, II, 95-6, 98-9; Bernier, p. 292.

118 Ibid., *1618-21*, pp. 195, 258, ff.; *1637-41,* pp.93, 278; *1646-50*, pp.56, 78, 189, 302; Pelseart, p. 9; Mundy, II, p. 110-11, 144-5, ff.; Marshall, p. 425.

119 Mundy, II, pp.78-135; Tavernier, I, pp. 92-99; CG, f. 141. Finch described this route upto Allahabad as an alternative route from Agra to Jaunpur.

120 CG, f. 141b.



Map. 3.3 : Trade Routes Towards East

The other one went through Bahadurpur, crossed Karamnasa River, Kudra River by a masonry bridge, Khurramabad now Jahanabad, Sasaram, Son River, Daudnagar, Arwal, Naubatpur etc. and joined the Banaras-Ghazipur branch before Patna.[121]

121 Mundy, II, pp. 122-35; Tavernier, I, pp. 98-99.

Table- 4.3: Bridges on Agra-Patna Route via Allahabad, Banares, Sasaram.

Places at	River	Bridges of/built by	Period	Reference
Agra*	Jumna	Boat	Akbar	*AN*, II, p.151; *Tuzuk*, p. 247.
Chaparghata	Sengar	Masonry	Akbar	*Early Travels*, p. 179;Mundy, p. 89; Tavernier,I, p. 93; *Ajaibu-l Afaq*, Or.1776, f.22b; *Miratu-l Haqaiq*, f.137b; *Cawnpore Dist. Gaz.* 85; Cf. *Atlas*, p.31
Kora	Rind	Masonry, stone	-	Mundy, II, p.91; *Miratu-i Haqaiq*, f.137b, Fuhrer, 163; *Atlas*, p. 31
Khurramabad	Kudra	Stone		Mundy, II, p. 129; Tavernier, I, p. 98.

*Boat-bridge at Agra facilitated the routes emanated from Agra in the East direction.

Agra-Kanauj-Lucknow-Awadh-Jaunpur: Route from Agra to Jaunpur, via Kanauj, ran mainly through Itimadpur, Kanauj, Mallawa, Lucknow, Awadh, Akbarpur, Surharpur, etc.[122]This route joined the Delhi-Patna route via Bareilly, and Lucknow at Mallawa and left it at Lucknow.[123]

The Agra-Allahabad-Patna route also could be traversed through Jaunpur.[124] However Finch noted the route from Agra to Allahabad as section of alternative route to Agra-Jaunpur.[125](See Table-4.4 for bridges on Agra-Kanauj- Lucknow-Awadh-Jaunpur-Patna route.)

Table- 4.4: Bridges on Agra-Patna Route via Kannauj,Lucknow, Jaunpur, Ghazipur

Places at	River	Bridges of/built by	Period	Reference
Akbarpur	Ton	Masonry/Akbar, under the supervision of Muhammad Hashim	Akbar/1568-9	Inscription; Fuhrer, p. 300: *Fyzabad Dist. Gaz.*186.
Surharpur	Majhoi		Akbar	Fuhrer, p. 302; *Fyzabad Dist. Gaz.*273.
Bhitari*	Gangi	Masonry	15th Cent.	Cunningham, *Arch.Survey Report*, I, 96; Fuhrer, p. 229.

*Bhitari was also on the Agra-Patna route via Banares, Bhitari, Gazipur, Buxer etc.

122 Finch in *Early Travels*, pp. 175-176.

123 Irfan Habib, *Atlas*, Map 8 B.

124 Mundy, II, p. 118.

125 Finch in *Early Travels*, p. 177.

Delhi-Patna via Bareilly: from Delhi, towards Patna, the route mainly passed through Dasna, Hapur, Garhmuktesar, Kachh, Amroha, Muradabad, Milak, Bareilly, Shahjahanpur, Barwan, Sandi, Bilgram, Mallawa, Lucknow, Nighan, Rae Bareli, Salon, Katra, Brahmangaon. etc. and meeting with Agra-Patna route at Banaras, ultimately reached Patna.[126]

Table- 4.5: Bridges on Delhi- Garhmukteswar Route.

Places at	River	Bridges of/built by	Period	Reference
Delhi*	Jumna	Boat	-	Bernier, p.241
East of Hapur	Kali	A nanak-panth saint—Dargahi	-	Mukhlis, *Safarnama*, CG, f.141a
Further East of Hapur	Choiya	Dargahi	-	CG, f.141a, *Atlas*, p.

*Boat bridge on Jumna at Delhi, also facilitated the Delhi-Kol route

Delhi-Allahabad: Delhi-Allahabad route followed the Delhi-Patna route upto Sandi and then joined the Agra-Allahabad route at Khajua.[127]

Patna-Bengal: However, from Patna, towards Bengal, Ganga River facilitated as the main means of conveyance and there was little use of roads but there led land routes also towards that direction.[128] The main stages on the Patna- Rajmahal- Maksudabad- Hugli route, which almost ran along the southern bank of the main channel of Ganga River upto Rajmahal and then along the Bagirathi River, were Fatwa, Barh, Monghyr, Kalyanpur, Ghorghat, Khalgaon, Garhi, Rangamati, Rajmahal, Dugachhi, Dunapur, Aurangabad, Suti, where the route crossed the Bhagirathi River

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126 CG, f. 141a-b. Author of *Miratu-l Haqaiq*, followed the same route from Delhi to Sandi, but between Garhmuktesar and Bareilly, he went through Sambhal instead of Muradabad and Shahjahanpur (*Miratu-l Haqaiq*, f. 134a-b).

127 *Miratu-l Haqaiq*, ff. 134a-135a.

128 Manrique, II, pp. 120, 145; Tavernier, I, p. 101.

and ran along the eastern bank of this river, then passed through Comrah, Nasirpur, Maksudabad or Murshidabad, Qasimbazar, Burrua, Plassey, then again the route crossed the Bhagirathi River and ran along the western bank, and reached Ghazipur and at last the route ran along Ganga-Hugli River from Summudgar below Nadia and passed Mirzapur, Amboa, Tribeni, Satgaon etc. and finally reached Hugli.[129]

Table-4.6: Bridges on Patna-Murshidabad Route.

Places at	River	Bridges of/built by	Period	Reference
Fatawa	Arm of Punpun	Masonry	-	Marshall, p. 77: Buchanan, *Patna-Gaya Report*, p. 76.
S. of Munghyr	A channel, Dhakranala	Shah Shuja	Shahjahan	Buchanan, *Bhagalpur Report*, p.102; *Deloche, Bridges*, p. 35
Kalyanpur	-	Stone bridge of three arches	-	Marshall, p.123,
Ghorghat	Over a ditch	Stone bridge of seven arches	-	Marshall, p. 74.
Near Garhi	-	-	-	Marshall, p.120.
Akbarnagar-Rajmahal	Hadaf	Stone masonry	Akbar/Shahjahan*	*Anc. Monuments in Bengal*, p.460-2; Kuraishi, 219-20; *Dist. Gaz. Santal Parganas*, p.277.
S. of Dugachhi	Over a flood channel	Stone bridge	-	Marshall, p. 115.
Dunapur	Arm of Ganga	Masonry	-	Alamgir Nama, p. 529-30. #

* The bridge is considered as contemporary to the Jami Masjid of Raja Man Singh, but the style of architecture points to a later date and it is probable that it may have been constructed during the viceroyalty of Sultan Shuja, about 1650 A.D.

Alamgir Nama further says that a bridge near the Ganga was destroyed by Shuja.

From Hugli one could go to Decca, through Jesar, Bhusna etc. which joined the Qasimbazar-Decca route at Fatehabad and reached Decca.[130]

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129 Marshall, pp. 111-27; see Van den Broucke's Map for the section Rajmahal to Nadia, Cf. Irfan Habib, *Atlas*, Sheet 10 B and 11 B and pp. 41, 48.

130 Van den Broucke's Map. But it revesed the true position of Jesar and Bhusna. Cf. Irfan Habib, *Atlas*, Sheet 11B, p. 48.

From Qasimbazar to Decca, via Fatehabad the route ran through Belgachhi, Fatehabad, Qazisala etc.[131] At Fatehabad it joined the Hugli-Decca route. This route was very bad and full of jungles and swamps.[132]

Qasimbazar-Bardwan-Midnapore-Balasore-Cuttack-Ganjam: From Qasimbazar, one could go upto Bardwan by two routes one via Bakresvar and other one via Ghazipur. The route via Ghazipur was actually a section of the Qasimbazar - Hugli route and at Ghzipur one had to leave this route to go towards Bardwan.[133] From Bardwan the main stages on this route upto Midnapore were Goghat, Chandrakona etc. At or above Midnapur the route from Hugli also met. From Midnapur the main stages upto Balasore were Kharagpur, Benapur, Narayanpur (Narayangarh), Bakhrabad, Dantan, Jalesar, Basta, Ramchandpur etc.[134]From Balasore onwards the stages were Soro, Bhadrakh, Jajpur, Cuttack, Barang, Jagannathpur, Manikpatan etc. and finally reached Ganjam.[135] This route passed mostly through forests and over many small and big rivers.[136]Small rivers were mostly crossed by stone bridges.[137]

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131 Ibid. It read Fattepoer for Fatehabad. Cf. Irfan Habib, *Atlas*, Sheet 11B, p.48.

132 Tavernier, I, p. 106.

133 Van den Broucke's Map. Cf. Irfan Habib, *Atlas*, Sheet 11B, and p. 48.

134 Manrique, II, pp. 99-116; Van den Broucke's Map (section upto Dantan); The details available for Hugli-Balasore route in Marshall (pp. 61-65) show that it joined Bardwan-Balasore route at or above Midnapore. Cf. Irfan Habib, *Atlas*, Sheet 11B & p.48.

135 Hamilton, I, pp. 380-92.

136 Irfan Habib, *Atlas*, Seets 11B &12B, pp. 48, 51.

137 Hamilton, I, p.387.

Table 4.7: Bridges on Bardwan-Cuttack- Puri-Ganjam Route.

Places at	River	Bridges of/built by	Period	Reference
Naraingarh	-	-	-	Marshall, p. 63
Jajpur	Madaguin	Stone	Mid sixteenth century.	*Anc. Monuments in Bengal*, pp. 478-80; Kuraishi, pp. 228-9.Deloche, *Bridges*, p. 29.
Bhubaneswr (near)	Genguti	Stone/ Varaha Kesari		Ibid., p. 532
Puri	Madhupur stream	Sand stone		Ibid., pp. 488-9.

Hamilton has mentioned numerous stone bridges over 'the little rivers' of Orissa (Hamilton, I, p. 387).

From Cuttack there led one route towards Harishpur, a port capable of receiving vessels not above 200 'tunns'.[138]

ROUTES TOWARDS THE DECCAN AND THE SOUTH:

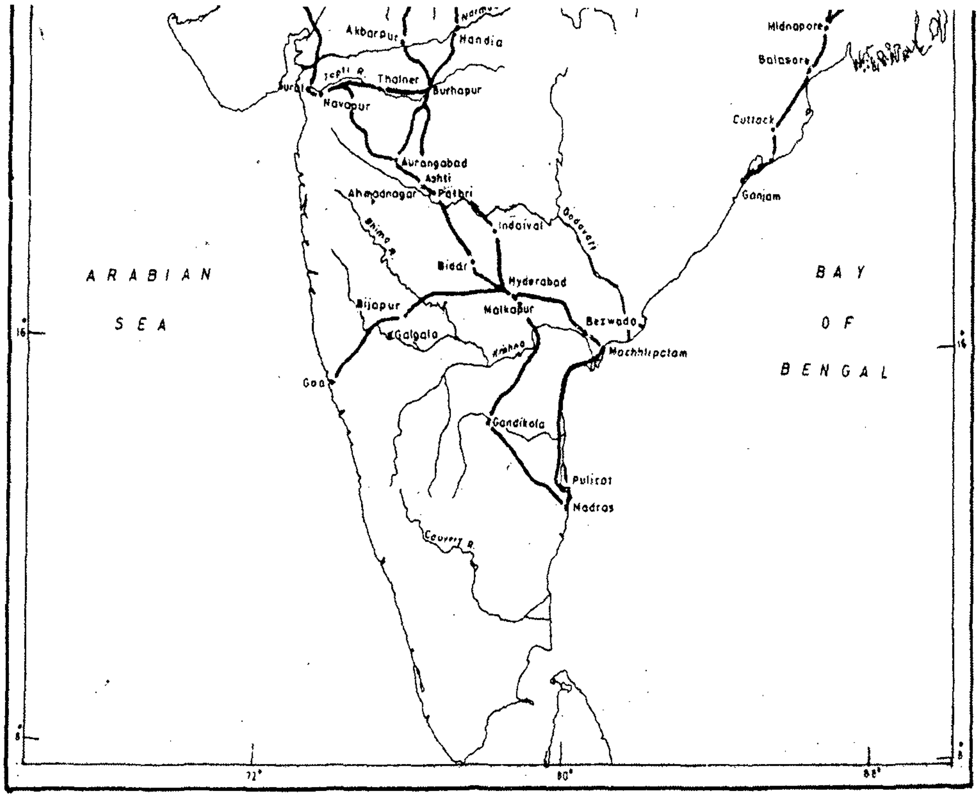
The Deccan and South was full of mountain ranges, plateaus and large number of rivers. Therefore routes were too much interrupted by high mountains, tanks, rivers and many narrow and difficult passes; most of the routes were tortuous and troublesome. However, we have evidences for use of carts also in the Deccan but only upto Golkonda.[139] In the extreme South India, carts were not utilised on large scale for carrying merchandise, being utilised for agricultural purposes such as for carrying harvest and manures only.[140]Beyond Golkonda either in the direction of Masulipatnam or in the

138 Burton, quoted in Wilson, *Early Annals of English in Bengal*, I, pp. 4-6 & Orissa Hist. Res. Jour., X, pp. 31-33; Manrique, II, pp. 91, 95; Bowrey, p. 129; Abu-l Hasan 'Hasan', *Muraqqa'at-i Hasan*, Riza Library, Fan-i Insha', 2820, 301-2. Cf. Irfan Habib, *Atlas*, p.51.

139 *DFI, 1624-27*, pp.342-43. Tavernier, I, pp. 119, 142; Thevenot, p.102.

140 Francis Buchanan, *Journey* (1800-01), London, 1807, I, p.184.

direction of further South, routes were mainly fit for pack oxen and horses for carrying merchandise and travellers.[141]



Map. 3.4: Trade Routes Towards the Deccan and the South

Spices and indigo were major commodities carried on these routes.[142]

In the Deccan and the South following were the important routes which facilitated trade and conveyance on large scale.

Burhanpur-Aurangabad-Bijapur: From Burhanpur, the route went through Anturli, Adilabad, Vaghad, Sarai Hatim Beg, Fardapur, Ghatifardapur, Golegaon, Sarai Kaman (Sillod), Allong, Pathari, Phulambri etc. and finally reached Aurangabad and from Aurangabad for Bijapur, the route ran through Ahmadnagar, Chamargonda, Pedgaon (Bahadurgarh)

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141 Tavernier, I, pp. 142; Master, p. 178.

142 *DFI*, Vol. II, p. 342-43; *EFI*, *1646-50*, p. 255; *1661-64*, p. 344.

etc.[143] This route passed through many mountain ranges and plateau, such as Bindha Range, Sahya-chal Range, Balaghat Plateau, Ahmadnagar Range etc.[144]

Burhanpur-Hyderabad via Udgir and Bidar: From Burhanpur towards Hyderabad, the route via Udgir and Bidar ran mainly through Anturli, Malkapur, Ŗohankhed, Deulgaon, Zafarnagar, Sindkhed, Shivni, Ner, Partur, Gahegaon, Pathri, Rampuri, Sawargaon, Rajaura, Udgir, Bidar, Didgi, Kohir, Panchnigal, Momanpet, Eniketala, Shankardeh, Chilkur, Golkonda, etc.[145]

Surat-Aurangbabad-Hyderabad-Masulipatnam: For Aurangabad from Surat, the route branched at Navapur from the Agra-Burhanpur-Surat route, and ran via Khanapur Pass, Pimpalpur and from that place one could travel on two routes one via Nampur, Patane, Sakora, Vakle, Daulatabad etc.[146] and other one via Taharabad, Satana, Umbarane, Ankai-Tankai, Devthan, Lasur etc to reach Aurangabad.[147] Then from Aurangabad, the route went through Chikalthan, Pipri, Ambad, Ashti etc. At Ashti the route divided into two parts one via Nander, Indur etc. and other one via Pathri. The route via Nander went through Manwat, Parbhani, Lasina, Nander, Patoda, Kondalwadi, Satepur, Indur, Indalvai, Kalvaral, Mallareddi, Biknur.

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143 CG, f. 136a; Irfan Habib, *Atlas*, Map-14 B and p. 58.

144 Irfan Habib, *Atlas*, Map-14 B.

145 Thevenot, pp. 150-51.

146 Tavernier, I, pp.116.

147 Ibid., I, p.120; Thevenot, pp. 102-04.

Masaipet, etc. to reach Hyderabad.[148] The route from Nander to Hyderabad has been described by Tavernier with different stages also, which passed through Sitanaga and Mallareddi.[149]The route via Pathri ran through Palam, Kandahar etc. and met with the route via Nander near Indur.[150] From Hyderabad the main route to Masulipatam went through Malkapur, Pangal, Gurglur, Anantagiri, Penuganchiprolu, Nandigam, Bezwada, Wuyyur, Nidumolu etc. and reached Masulipatnam.[151] Tavernier followed the same route, but to see the Diamond mines at Ghani or Kollur, he left the main route at Almaskipenth beyond Pangal and rejoined the main route at Bezwada via Kakani.[152]See Table- for some of the bridges on this route.

Table- 4.8: Bridges on Surat-Aurangabad-Hyderabad-Masulipatnam Route

Places at	River	Bridges of/built by	Period	Reference
Hyderabad	Musi	Two Stone bridges	1578	Peter Floris, pp. 128-9; Tavernier, I, pp. 122-23; *Landmarks of the Deccan*, pp. 10-12;
,,	Nerva?	Stone	-	Thevenot, pp. 131-32.
Masulipatnam	Over a marsh	Wooden /Mir Abdulla Bakir	c. 1672	Marshall, p. 52; Master, II, pp. 116,159; Bowrey, pp. 62-63; Hamilton, I, p. 370

Hyderabad-Ramallakota: From Hyderabad, towards Ramallakota, where diamond mines were situated, the route ran through Shamsabad,

148 Tavernier. I, pp.119- 120; Thevenot, pp. 108-112.

149 Ibid., p.119.

150 Ibid., p. 120.

151 Thevenot, pp. 146-7; Tavernier, I, pp. 139.

152 Tavernier, I, pp. 139-142; II, p. 73.

Farrukhnagar, Raikal, Rajapur, Jedcherla, Badepalli, Kottur, Ghanpur, Kondur, Alampur, Kurnool (Qamarnagar) etc.[153]

Hyderabad-Gandikota-Madras: From Hyderabad, route towards Gandikota or Ganjikot, passed mainly through Macherla, Murrivemula, Tripurantakam, Dupad, Vemulakota, Cumbum, Gudimitta, Sancherla, Poraimamilla, etc.[154] On this route, baskets (coracles) were used for crossing the rivers.[155]Route from Ganjikot to Madras, mainly passed through Ontimitta, Utukuru, Tirupati, Gazulamandiyam, Narayanvannam, Uttukkotal, Cholavaram, etc.[156] This route passed through mountainous tracts having grooves of bamboo, wild elephants, etc.[157] The way was traversed on ox or horse.[158]

Hyderabad-Malkapur-Nellore-Pulicat-Madras: This route branched from the Hyderabad-Masulipatam route, at or beyond Malkapur, followed the Hyderabad-Gandikot route, and left this one at Murrvemula, and finally ran towards Madras. Main stages on this route were Malkapur, Krishna River, Macherla, Murrivemula, Nellore, Kottapatnam, Armagon or

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153 Shafiq, 178; Tavernier, II, p.72. However *Atlas* found, stages between Hyderabad and Ghanpur, given by Tavernier hard to follow (Irfan Habib, *Atlas*, p. 61).

154 Tavernier, I, pp. 235-41. However Tavernier has given the stages between Hyderabad and Macherla but identification of those places is not possible. (Cf. Irfan Habib, *Atlas*, p. 62)

155 Ibid., pp. 235-6, 239.

156 Ibid., I, pp. 216-227.

157 Ibid.,pp 216-227.

158 Ibid., p. 218.

Duraspatam (Durgarajupatnam), Sriharikota, Pulicat, Vallur, Tiruvottiyur etc.[159]

Masulipatam-Nizampattam-Madras: The major stages on the Masulipatnam-Madras route via Nizapattam were Pulivarru, Nizampattam, Bapatla, Chinna (Ganjam), Allur, Karedu, Ramayapatnam, Tummalapenta, Zuvvaladinne, Udkor (Utakuru), Krisnapatnam, and met with the Hyderabad-Madras route via Malkapur and Nellore at Kottapatnam.[160]

Bezwada-Madras: From Bezwada, on the Hyderabad-Machhlipatam route, towards Madras there were two routes upto Mangalagiri. One of those ran through Mangalagiri, Kakoni, Guntur, Kodavid, Addanki, Kandukur Nellore and then joined the Hyderabad-Madras route via Malkapur, Murrivemula, etc.[161]The other one ran through Mangalagiri, Pannur, Ventapallem where it joined Masulipatam-Nizampattam-Madras route, which further joined the Hyderabad-Madras route via Malkapur, Murrivemula, etc. at Kottapatnam.[162] On both of these routes there were several small and big rivers which the travellers had to wait for low tide for fording or had to cross in raft or boats. The route was hilly and mountainous and there were scarcity of fodder for horses at many places also.[163]

159 Abbe Carre, II, pp.353-77. He followed the same route upto Murrivemula, as Tavernier followed during his journey towards Gandikota (Tavernier, I, pp.235-41)

160 Master, II, pp. 125-38. Irfan Habib, *Atlas*, Map-16 B and notes on p. 66.

161 Tavernier, I, pp. 208-214; Irfan Habib, *Atlas*, Maps 15 B and 16 B.

162 Master, II, pp. 175-83; Irfan Habib, *Atlas*, Maps 15 B and 16 B.

163 Tavernier, I, pp. 208-14; Master, II, pp. 175-83.

NAVIGABLE RIVER SYSTEMS:

Two major river systems namely Ganga River System and Indus River System were mainly used for commercial purposes.[164]

GANGA RIVER SYSTEM:

The Ganga, with Jumna, and other rivers formed the biggest navigation system in Mughal India between the capital Agra and Bengal. According to Sujan Rai, source of Jamna officially Yamuna, was not known but it was said to be in China and it flowed through the Himalyan country of Bashahar.[165] Irfan Habib inferred from it that Sujan Rai took Pabar-Tons to represent the Jamna, and not the stream which originates at Jamnotri. No important change has been found in its course since 16th -17th century. From Agra it ran through Etawah, Chaparghata, etc. and its confluence with river Ganga took place at Allahabad.[166] Source of Ganga was also not known, both Abul Fazl in the sixteenth century and Sujan Rai in the late seventeenth century were of the same opinion about source of the Ganga. Whereas Abul Fazl simply noted that its sources could not be traced and it raised in the mountains towards the north, and passed through the *suba* of Delhi, imperial Agra, Allahabad and Bihar into the *suba* of Bangal, Sujan Rai noted that its source is not known and coming out of China, it flowed under the range of Badrinath Range and then flowed past Srinager.[167] Irfan

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164 See previous (Chapter-3), section 'River Navigation'.

165 Sujan Rai, pp. 36-7.

166 Irfan Habib, *Atlas*, pp. 11, 30.

167 *A'in*, II, p.49;Sujan Rai, p. 37.

Habib, in his Atlas inferred from Sujan Rai's observation that Sujan Rai took the Vishnuganga-Alaknanda to represent the main stream of the Ganga.[168] He further noted that after coming into plains the Ganga shifted Eastwards in two long sections since that time. Below Allahabad he found no evidence of any great change in the course of the Ganga.[169] After passing Monghyr, the river made a wider curve so as to flow past Gogri and Jamalpur. A divergence occurred, when the river passed Khalgaon, where after passing Kosdi, turned to run southeast by east and had Painti on its south bank.[170] At a place called Dudha, 4 kurohs north of Pir Pahar, itself on the limits of Akbarnagar-Rajmahal, the river divided into three branches.[171] The main navigation channel in this section upto Suti, were in part eastern branch of Ganga and in another part middle branch.[172] Near Qazihattah in the *sarkar* of Barbakabad, the Ganga divided into two streams. One of those arms flowed eastwards, to fall into the sea at the port of Chattigong and other pursued a southern course.[173] However *Akbarnama*, placed the division beyond (below) Tanda, one branch running towards Satgaon and

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168 Irfan Habib, *Atlas*, p. 30.

169 Ibid.

170 Marshall, pp.72, 75, 96: Irfan Habib. *Atlas*, p. 41.

171 *Alamgirnama*, p. 553-4; Irfan Habib, *Atlas*, p. 46.

172 Tavernier, pp. 102-103; Marshall, pp. 69-71, 97-9; Irfan Habib, *Atlas*, p. 46. An arm of Ganga passing by south of Gaur was also active and used as a navigation channel (Manrique, II, pp. 123-4, Irfan Habib, *Atlas*, p. 46).

173 One of those arms was Paddhavati of Abul Fazl and Padmavat of *Baharistan-i Ghaibi* and modern Padda or Padma, flowed eastwards, to fallen into the sea at the port of Chattigong and other pursued a southern course. (*A'in*, I p.49; *Baharistan-i Ghaibi*, tr. pp. 56, 60; Irfan Habib, *Atlas*, p. 46).

other towards Mahmudabad, Fathabad, Sonargaon and Chatgaon.[174] The southern branch of Ganga at Qazihatti, was called 'Coreah Gonga' (Kauriya Ganga) and also known as Jellinghy River ('Jalangi' in modern map), was actually the main navigation channel by which boats normally went from Patna to Hugli as it was navigable for throughout the year.[175]

The branch emerged at Suti called Bhagirthi, and 'Sutee river' by Marshall due to its emergence at Suti and also 'Cossumbazar River' by him, as Qasimbazar was on its bank, was narrow and of about 2 yard deep and was dangerous to travel the 'Patelloes' with saltpeter in September near Suti and it was fordable in winter at Nasirpir and at Qasimbazar, Marshall found this river 'almost quite dry' in the early May.[176] This branch further passed through Ghazipur and met Ganga-Hugli at Summudar below Nadia.[177] This branch was navigable only seasonally.

However in *suba* of Bengal rivers provided the main means of transportation. In 1595, Abul Fazl noted that people in *suba* of Bengal due to presence of numerous rivers used to travel in different kinds of boats made for the purpose of war, carriage or swift sailing etc. especially in the

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174 *AN*, III, p. 109; Irfan Habib, *Atlas*, p. 46.

175 Rannell, Map, I, and II, see also his map of inland navigation on opp.364 (*memoir of a map*...); Marshall, pp. 65-68, 112; Tavernier, II, p. 3.

176 *Alamgirnama*, pp. 519, 524-27; Marshall, pp. 98-99, 114; Tavernier, I, p.103; Irfan Habib, *Atlas*, p. 47.

177 Marshall, pp.66, 112; Irfan Habib, *Atlas*, p. 47.

rainy season.[178] He has also noted in suba of Bihar that boats were procurable in plenty.

INDUS RIVER SYSTEM:

Other important river system which provided very good means for carrying trade on boats was Indus River system which comprised besides others, of five important rivers namely Indus, Ravi, Jhelum (Bihat), Sutlej and Chenab. These rivers served as an important means of transport in their region.[179] Similar to disputes over source of Ganga and Jamna, there were disputes about the source of Sindh or Sind (Indus) river also. Some traced it to a point between Kashmir and Kasghar and others to Khita (China: presumably Central Tibet).[180] Irfan Habib has observed that the real dispute was whether the Shyok River or the Indus River proper was the main source of combined river.[181] Hugel in his map has shown Shyok river as northern branch of Indus and Indus as eastern branch.[182] Lahori used term of 'Nilab' for the combined river (Shyok and Indus rivers) after its passing through Skardu.[183] Ravi river rising near Chamba, in the Bhadral range, and passing through Chamba, Shahpur, etc. reached Lahore.[184] According to Abul Fazl confluence of Ravi with Chenab (Chenab, earlier had merged Behat River

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178 *A'in*, II, pp. 49-50.

179 *A'in*, II, p.165; Sujan Rai, pp. 59-60.

180 Ibid., II, p.152; Sujan, pp. 78-9.

181 Irfan Habib, *Atlas*, Map 3B and p. 7.

182 Ibid.

183 Lahori, I, part ii, p. 281.

184 *A'in*, II, p. 152; Sujan Rai, pp. 76-77.

in itself near Shor), took place near Zafarpur but Sujan Rai placed the confluence near Sarai Sidhu.[185] The combined river of Behat, Chenab and Ravi flowed into Sind near Uchh.[186]

Indus was navigable for whole year between Multan and Thatta.[187] Between Lahore and Multan due to shallowness at various places, Ravi had mainly seasonal navigation.[188]

In this river system generally flat-bottomed vessels were used.[189]

Commercial navigation is also reported in Suttaner river, a branch of Indus, however, navigation was seasonal.[190]

In Kashmir the carriage of goods was effected by boat besides loads carried by human in the difficult tracts.[191] Originating in Vernag, Bihat river entered Kashmir valley and passing through Wular Lake, re-entered the hills at Barahmula. In Kashmir the Bihat river was navigable from Kahnabal to Barahmula.[192]

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185 Ibid., Sujan Rai, p. 77.

186 Ibid., p. 77.

187 EFI, 1637-41, pp. 135-37.

188 Finch in *Early Travels*, p. 161; *EFI, 1634-36*, pp.130, 192; *1637-41*, pp.135,198.

189 Pelseart, pp.30-31; EFI, 1637-41, p. 135-37.

190 EFI, 1646-50, p. 151.

191 *A'in*, II, p. 170; *Tuzuk*, p. 298; *Iqbalnama*, p. 149.

192 *Tuzuk*, p. 294 (Jahangir during his visit to Kashmir through the Pakli, Barahmula route, took boats at Barahmula to reach Srinagar); *Iqbalnama*, pp.141,148; Lahori, I, part ii, p. 22, 24; Lawrence, 18; Irfan Habib, *Atlas*, Map 3B, p.7;

CHAPTER 5

SECURITY ON THE TRADE ROUTES IN MUGHAL INDIA

We have seen in the previous chapters that almost every part of Mughal India was linked with land routes. On the other hand coastal route linked the coastal part of the empire. All these routes carried very brisk trade by the means of transport suitable for the respective geographical terrain by paying the prevalent freight charges. But there were certain factors also which indirectly raised the cost of transport both on the land and water. Therefore a study of those factors seems important.

1.1: Problems of Safety

On the land routes, there were mainly two types of problem, which economically affected the smooth flow transport. First one was the level of security on the routes and another, more important, was exactions of various legal and illegal tolls and cesses -- generally called *rahdari*.

For conditions of security on the routes we have information mainly from the European Travellers as well as European Companies' Records. It appears from these sources that many routes were infested with gangs of thieves and robbers. In 1579, Father Monserrate during his journey on the most frequent route of Mughal India, the Surat-Agra route via Burhanpur, along the Bindha Range (Satpura range) of mountains, had encountered a

large number of thieves and even lost a guard.[1] In1596, Abu-l Fazl reports for the same route that, one lakh *muhrs*, which were sent for the equipment for the army in the Deccan remained at Gwalior due to insecurity on the route, therfore guards were sent for the safe passage.[2] In the first decade of seventeenth century, during the reign of Jahangir, William Hawkins, who travelled mainly on the Agra-Surat route, observed that "the country is so full of outlawes and theeves that almost a man cannot stirre out of doores throughout all his domonions without great forces."[3] A few years later, William Finch during his journey from Agra to Ahmadabad found the route infested with thieves at several places such as at Bhadwar, Sunenarra (Sunera) Sipri etc. On the way he came across Gracias near Sunenarra in Malwa and Kolis near Ahmedabad who were "thievish people."[4] He described his journey on this way "from Geloure to this citie is all a sandy woody countrey, full of thievish beastly men and of mankind."[5] In 1619, an English caravan from Agra was looted between Manderabarree (Mandawar) and Sundelva in the Jurisdiction of Shahnawaz Khan, son of Khan-i-Khana, by the thieves who took away14 Churles, Bayana indigo and killed four or

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1 Monserrate, Commentary, p.13. Actually the range of Satpura in the Central Province was inhabited by Bhils and Kolis.

2 *AN*, III. p. 712.

3 Hawkins in Early *Travels*, pp. 113-114.

4 Finch in *Early Travels*, pp. 136-137, 142- 144,173. William Foster has noted that "Gras was a kind of blackmail levied by Rajputs and Kolis, and grassia was the term given to the person who received this toll. It thus came to mean a robber."(*Early Travels*, foot note 1, p.144).

5 Ibid. p. 174.

five servants that attended it.[6] In 1621 an English caravan from Agra was looted at about a day's journey from Mandu by a commander of 5000 horse in the army of Malik Amber despite having the pass (*qaul*).[7] Around 1626, Pelsaert regarded Jahangir "King of the plains or the open roads only for in many places you can travels only with a strong body of man or on payment of heavy toll to rebels."[8] Peter Mundy who visited India during 1630-34 presents picture of many Inland routes as infested by robbers and rebels. Coming from Agra to Surat in 1633 he records several incidents of robberies and illegal exactions. Near Sironj, he records, the Dutch *Caphila* was assaulted by bandits.[9] Mundy had to pay the so called custom at Bunkerre (Bhanpur) near Baroda on the river to the bands of Koli rebels, who pillaged the carts of Murari, an ex-Officer at Baroda.[10] At Bhandu, a Koli snatched the clothes of a poor fellow who was later wounded by another Koli when he tried to get them back.[11] He further records that between Jornang and Mehsana, the way was very dangerous for thieves

6 *EFI*,1618-21, pp 59-60, 81,91.

7 Pieter van den Broeke, Surat Dairy, *JIH*, vol. X pt. II, p. 239; *DFI*, I, pp.155, 162, 164; *EFI*, 1618-21, p. 243. Due to ongoing war with the Deccans, the governor of Mandu did not allowed the English caravan to travel further without a writing absolving him from all blame, should it be robbed (*EFI*, 1618-21, p.230).The English got assurance in writing under the seal of Malik Amber for safe passage thrugh his territories and same was confired by another writing under the seal of Yaqut Khan general of the Deccan armies in Mughal territories (*EFI*, 1618-21, p. 231). but the caravan was robed by the same army.

8 Pelsaert, p. 58.

9 Mundy, II, p. 256.

10 Ibid. p. 269.

11 Ibid. p. 263.

hide in woods and thick forests. At Mehsana Mundy recorded that, "from Agra itself hither and as I understood to the Gates of Ahmudavad (Ahmadabad) is a desert, barren and theevish countrie."[12]

In Gujarat the commercial centre of the Mughal empire the evidence from European sources suggest that the routes were not safe for merchants and trade. Finch (1608-11), found the way between Surat and Cambay 'theevish'.[13] Pieter van den Broeke wrote in 1627 in his diary about the unsafe route between Surat and Broach.[14] In c.1629, De Joungh, has written about the thieves staying in the mountains, in Gujarat in detail. He found these thieves under the leadership of certain rajas, considered to be better fighters than the Mughals, were continuous danger on the routes.[15] In 1638-9, Mandelslo observed that due to the presence of 'Rasboote', the road between Ahmadabad and Cambay had become very dangerous.[16]He met a caravan from whom the highwaymen had extorted one hundred rupees and again Mendelslo encountered a party of Rajput robbers near Anklessor.[17] Thevenot who visited India during 1666-67 informs us that the Gracias

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12 Ibid. p. 264.

13 Finch in *Early Travels*, p.174.

14 Pieter van den broeke, JIH, vol. XI, pt. I, p. 209.

15 Wollebrand Geleynssen de Jongh, 'Verclaringe ende Bevindinf' extracts as 'A Dutch Account of Mogul Administrative Methods' transl. W. H. Moreland, *Journal of Indian History*, Vol. IV, (1925-26), pp. 69-83, especially, pp. 73, 74, 79, 81.

16 Mendelslo, p. 30.

17 Ibid. pp. 35, 46.

inhabiting the villages from Cambay to Broach make their living by robbery.[18]

On the Ahmadabad-Thatta route, in 1613 Nicholas Withington had to wait for another Caravan to accompany him for the fear of thieves at Carrya (Khawad). Near Raddinpoore (Radhanpur), he met a caravan that had been robbed near Thatta. Again, at Nagar Parker, he came across another caravan robbed at about two days journey from Thatta. Between Jun and Thatta (half a day journey from Thatta) he reports the presence of a criminal group, "who pay none neither acknowledge any kinge, but themselves, robbing and spoiling whom they list."[19] At a place named Sarrunne, 'a great towne of Rasbootes', Withington was misled and looted on several occasions. They even took away his cloths and he had to beg for food.[20]

On the Agra-Patna route via Allahabad, from the experience of Mundy (1632/33) it apperas that due to presence of certain rebellious inhabitants, mainly between Bhadohi and Banaras, merchants had to buy safe passage by paying money at many places, to those rebels.[21] At the same time he himself noted that the route via Jaunpur was both safe and trouble free.[22]

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18 Thevenot, pp. 20-21.

19 Withington in *Early Travels*, pp. 209-10.

20 Ibid. pp. 211-216.

21 Mundy, II, pp. 111-10, 117-20. Those rebels/ thieves were the Rajputs of the Mirzapur and Bhadohi districts.

22 Ibid., p.118.

In January 1650 an English Caravan from Lucknow was robbed at Jettenore, where three carts were looted, causing a loss of at least 5000 rupees.[23]

Thevenot records about a special group of robbers called 'Thugs' around Delhi that "the Cunningest Robbers in the world are in that Country." Those robbers used a certain slip with running-noose for strangling the travellers by throwing it around their neck. They even used beautiful woman for trapping the travellers.[24]

On the route from Lahore to Qandahar via Multan we have reports of presence of Baluch and Afghan robbers. In 1615, Steel and Crowther during their journey on that route mentioned many places which were notorious for theft. The caravan which they had joined, had to wait for ten days for procuring the convoy of horsemen to conduct them to Chatza -a small fort in the mountain, as a previous caravan was robed there.[25] At some places even the garrisons kept for the safe conveyance by Mughals, were not averse to robbery if got opportunity and exacted illegally cesses from the caravans.[26] They noted about the Afghans inhabited in the mountains of Qandahar that they were great robbers and were accustomed to cut off whole caravans.[27] Later on in 1642, Manrique, who also travelled on the

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[23] *EFI,1646-50*, pp. 294, 302.

[24] Thevenot, p.58. See also *Waqia i Ajmer*, 405, for reference to "highway robbers known in Hindi as *thugs*".

[25] Steel and Crowther, p. 270.

[26] Ibid., 270, 271.

[27] Ibid., p. 272.

same route from Multan, found same condition of insecurity on the route. He would have to wait for six months for a caravan to accompany with, if he had not accompanied a Mughal noble, "owing to the large bands or bodies of Baluchis, who being a race addicted to robbery and plunder, used to sally forth and infest all those roads."[28]

Burden of Legal and Illegal Taxes and Cesses:

Another difficulty that travellers faced on the route was the exactions that the *jagirdars* and the *zamindars* often realized from them.

The most burdensome of the levies was *rahdari*- comprised of various tolls and cesses, exacted by the various authorities controlling the routes. Jahangir just after ascending throne noted that such dues were exacted in every *suba* and every *sarkar* by the *jagirdars*.[29] In the reign of Aurangzeb, these cesses were realized with regularity by the *zamindars* and the *jagirdars*.[30] The famine in 1662-3 in Dacca (in Bengal) has been attributed to "the heavy burden of the *zakat*, the oppression of the *rahdars* and the exactions of the *chaukidars* (men posted at *chaukis* or toll and guard stations)." Since these oppressions resulted in the inability of the merchants in bringing grain to the city.[31] The rate of *rahdari* varied from place to place and from person to person assessed. Though, mostly these were field *ad valurum*. In 1616, regarding these cesses, the English Factors at Surat,

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28 Manrique, II, pp. 251-2, 255.

29 *Tuzuk*, p. 4.

30 Khafi Khan, II, pp. 87-90.

31 *Fathiya-i Ibriya*, ff.79b-80a, 110b-111a.

wrote in a letter, that "the customes etc. aryseing on carts on the way, wee conceave that severall commodities pay different customes."[32] Instances of uniform levies mostly on the river crossings are also found. In Akbar's period, a laden cart was charged 4d. and empty one 2d.; a laden camel, 1d., unladen camels, horses, and laden cattle ½ d; and unladen cattle, ¼ d.; other beast of burden used to pay 1/16d., which included the tolls due by the river. Twenty people had to pay 1d. for crossing, but they were often taken gratis. One-half or one-third of amount thus collected used to go the state and the remaining to the boatmen.[33] In the second half of seventeenth century Tavernier also noted on a river crossing that "For each side there is a Darogha, who allow no one to pass without an order; and he takes note also of the kind of merchandise carried, each wagon being charged four rupees, and a chariot paying but one, without counting the boat, for which it is necessary to pay separately."[34] However, duty was not collected on personal property and it was collected only on merchandise before embarking in the boat for crossing the river.[35] In the later years of Aurangzeb's reign, the *mutasaddi* of Surat extorted Rs.2 per bullock and his agent, Rs.1, from the Banjaras, who supplied grain to the imperial army in the Deccan.[36] Khafi Khan noted that in later years of Aurangzeb's reign the imposts and cesses surpassed those of the past and were so frequently levied

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32 Foster, *A Suppl. Cal.*, p.66.

33 *A'in*, I, p. 145.

34 Tavernier, I, p. 96.

35 Ibid., pp. 98, 99.

36 *Ahkam-i Alamgiri*, f.148 b.

everywhere that a commodity taken inland from the port sometimes ended up paying as much duty as the price of its purchase.[37] Aurangzeb found collection of *rahdari* so extortive that he equated it with highway robbery "this is not *rahdari* but *rahzani* (Highway robbery)."[38]

1.2: Measures of Safety on the Routes

The Mughal administration was not indifferent to the problems of safety and illegal exactions and tried to take measures against both. The Mughal Empoerors issued several *farman*s time and again for abolishing the transit imposts, known as *baj*, *tamgha*, *zakat* etc. In the early year of his reign, Akbar issued a *farman* in which he abolished *tamgha*, *Jihat*, *rahdari* etc. all over his empire.[39] Again in 25th Ilahi regnal year (1582-83), he issued another *farman* abolishing *baj* and *tamgha*.[40] Akbar even appointed officials to punish the extortionists all over his empire.[41] Jahangir also prohibited the collection of *zakat*, *tamgha*, *mir- bahri* and *sair*, etc., which were collected by the *jagirdars* in every *suba*s and *Sarkar*s for their own profit.[42] Similarly, Shahajhan issued *farman* for abolishing these imposts.[43]

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37 Khafi Khan, II, pp. 87-90.

38 *Ruqat-i Alamgiri*, Kanpur, p. 14.

39 Arif Qandahari, *Tarikh-i Akbari*, pp. 32-33.

40 *Mirat*, I, 171-73; *AN*, III p. 295-96; Nizam-uddin Ahmad, *Tabaqat-i Akbari*, ed.B.De ,Bib. Ind. Calcutta, 1913, III, p. 347.

41 *AN*, III, p. 670.

42 *Tuzuk*, p. 4.

43 Salih Kambu, *Bahar-i-Sukhun*, Add. 5557, ff.23b-24a; Or.178, ff.51a-53a; Chandrabhan Rai Barahman, *Chahar Chaman- i-Barhaman*, Add. 18863, A: f 25a; Or. 1892, B: f 16a-b. Cf. I. Habib, *Agrarian System*, p. 73.

Aurangzeb issued a *farman* in the year of his accession in which he abolished *zakat*, *rahdari*, etc., on the victuals and provisions necessary for the public all over his empire. For the implementation of this order he sent mace-beares (*gurz bardaran*) to all officers with strict warning to implement this order.[44] In another order in 10th regnal year (1077 A.H), Aurangzeb abolished the *zakat* on all the articles belonging to Muslims, but retained it for Hindus, at the rate of 5 %.[45] But in 1681-82 (25th regnal year), he re-imposed the *zakat* on Muslims to be realized at the rate of 2.5%.[46] The English had to pay only 3% at shipping and were exempted from all other transit dues.[47] However it clearly reflects from the issuance of *farmans* by the successive Mughal emperors time and again that despite prohibitions from the administration these *farmans* had only partial effects and these levies were exacted continually in one form or other. In fact in the later period of Aurangzeb, though prohibited, these "illegal" cesses continued to be included in the *jagir*- orders (*parwana-i jagir*) through which the salary claims of *jagirdars* were met.[48] Hence *rahdari* proved a major factor which raised cost of transport on the different routes.

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44 *Durru-l Ulum*, Gopal Rai, Bod. Lib. Walker 104, transcript in CAS ,Aligarh ,ff. 37b-38b; *Alamgirnama*, pp.435-439; *Miratu-l Alam*, Aligarh MS, ff. 138b-139a; *Maasir-i Alamgiri*, pp. 530-31; Khafi Khan, II, pp.87-90; *Mirat*, I, pp.180-81.

45 *Mirat* I, p. 280.

46 Ibid., I, pp. 315-16.

47 *EFI*,1665-67, p. 266.

48 Khafi Khan, II, p.p. 87-90; Farhat Hasan, 'The Mughal Fiscal System in Surat and the English East India Company', *Modern Asian Studies*, Vol. 27, No. 4 (Oct. 1993), pp.711-718, especially pp. 711 & 718.

As far the security on the route was concerned all the officers such as *subahdar*, *faujdar*, *kotwal*, *jagirdars*, etc. were held responsible for all unpleasant occurrences of theft or robbery under their jurisdiction. If a case of robbery or theft was reported and the goods lost were not recovered, it was the responsibility of the officers to make up the loss of the robbed person.[49] Tavernier noted that 'the Governor' did not allow any one to go out and travel in the night as was held answerable for thefts which occur in his jurisdiction.[50] In 1621, due this responsibility the governor of Mandu did not allowed the English caravan to travel further without giving in writen document absolving him of all blames, should the caravan be robbed owing to ongoing war with the Deccans.[51]The high officials were not only responsible for their own fault but were also held responsible for behaviour of their subordinate officials, as well. The *mansab* of *faujdar* of Gwalior, Amanat Khan was reduced to 100 *suwars* for failing to check his subordinate staff from exacting *rahdari*.[52] Fernao Guerreno records that an officer at Lahore was so severely punished for exacting some trifling toll

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49 *A'in*, I, pp. 197-8; Lahori, *Padshahnama*, Calcutta, 1867-68, pt. II p. 35; ibid. pt. I, p. 505; *Chahar Chaman-i Barhaman*, A: f.25a-b; B:16b; Tavernier, I, p. 39; *EFI, 1637-41* ,p. 61; *1646-50*, pp. 300-302; *1655-60*, p. 315; Thevnot, pp. 28-29, 50; Ovington, p.139; Manucci, II, p. 451; II, p. 423; *Mirat* (Suppl) p. 170,188 etc.

50 Tavernier, I, p. 39.

51 *EFI, 1618-21*, p. 230. However the English got assurance in writing under the seal of Malik Amber for safe passage through his territories and same was confired by writing under the seal of Yaqut Khan, General of the Deccan armies in Mughal territories (Ibid., p. 231), but the caravan was robed by the same army.

52 *Akhbarat*, document no 2189, dated 6th *safar*, 26th year of Aurangzeb.

that his head was shaved and he was dragged through the street of the city.[53]

Most of the contemporary travellers and historians have recorded several incidences of punishment given to the outlaws. William Finch saw minars with the heads of thieves at Panipat.[54] Withington notes that Sardar Khan, a great Mughal noble with 2000 horse, was besieging a castle of a Rajput who lived by robbing poor passengers on the way.[55] Again, at Bollodo, he saw Nurrullah Ibrahimi Khan returning from a punitive raid, bringing home with him 169 heads of the Coolies (Kolis) a 'theevish' caste of mountaineers that lived by 'robbing and spoyling' poor passengers on the highway.[56] In 1623 Jahangir sent an expedition to suppress the highway robbers on the eastern side of Jamuna near Mathura, as a result of which a large number of them were killed, their women and children taken captive.[57]Near Buxer, Peter Mundy saw a great destruction of thieves by the governor of Patna, Abdullah Khan by the order of Shahjahan. He saw above "200 Munaries (*minars,* pillars) with heads of thieves mortared and plaistered leaveing nothing but their verie face, some 30, some 40, some more, some less." Abdulla Khan with 12000 horse and 20000 foot soldiers destroyed all their towns, took all their goods their wives and children for

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53 Fernao Guerrerio, *Relations*,portions translated ,C.H Payne, *Jahangir and the Jesuits*, London, 1930, p.37.

54 Finch in *Early Travels*, pp. 157-58

55 Withington in *Early Travels*, pp. 198-99.

56 Ibid., p. 209.

57 *Tuzuk*, pp. 375-76.

slaves and cut off heads of their men to be 'immortered' in the *minars*.[58] Again in 1634 an expedition was sent to punish 'the malefactors' on both sides of Yamuna who used to commit robbery on the Agra-Delhi route.[59] English factors noted that such was the punishment of thieves that the whole towns were depopulated.[60]

The system of intelligence prevailing in the Mughal empire was to serve as a powerful instrument through which the imperial government could maintain strict vigilance and control the activities of its officers and punished them if found guilty. There were parallel agencies of intelligence.[61] *Waqa'i-nigars* were employed to report to the court, but his activities were closely monitored by the *swanih-nigar* who also called *khufia navis*.[62] He was required to report secretly on all the events, everybody was in mortal dread of him and his office.[63] Amanat Khan, *faujdar* of Gwalior was punished by reduction in *mansab* due to a *waqai* report in which he was reported to be of exacting *rahdari* and other illegal *abwabs*.[64] On the basis of a *waqai* report, the *jagirdar* of Mathura was ordered to compensate the English as their victuals were looted in his jurisdiction.[65]

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58 Mundy, II, pp. 90, 110-11.

59 *Padshahnama*, 1 pt. II, pp. 71-72, 76.

60 *EFI, 1646-50*, p. 127.

61 *Mirat* (Suppl,) p. 177.

62 Ibid., p. 175.

63 *Alamgirnama*, p. 1081.

64 *Akhbarat*, document no 2189, dated 6th *safar*, 26th year of Aurangzeb.

65 *EFI*, (1646-50) pp. 300-302.

The institution of *sarais* (inns) or walled lodgings and store houses designed for the travellers were present all over the empire, proved one of the important arrangements for safety on the routes.[66] These *sarais* not only provided the travellers and merchants resting places on the roads but also provided security to them. Jahangir himself realising the importance of sarais ordered that "On roads where thefts and robberies took place, which section of roads might be at a distance from habitations, the *jagirdars* of the neighbourhood should build *sarais*, *mosques*, and dig wells, which might stimulate population, and people might settle down in those *sarais*. And if these be near *khalisa* estate, *mutasaddi* of that place should execute the work.[67]The gates were closed at sunset and opened only in the morning. Before closing and opening the gates the person deputed for this, shouted loudly giving three warnings to the travellers to look after their things. If anyone found that he had lost his things, the gate remained closed till the thing was recovered.[68]

The system of *hundi* and *bima* was an important private arrangement in Mughal India.[69] Sujan Rai describes it enthusiastically as one of the wonders of India. Describing it he says, "if due to danger on the routes any

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66 See previous chapter for presence of *sarais* along the important routes, throughout the Mughal Empire.

67 *Tuzuk*, p. 4.

68 Steel and Crowther, p. 268; Bernier, p. 233, Manucci, I, p. 67.

69 See I. Habib in PIHC, 33rd Session, 1972, Muzaffarpur pp. 290-303; I. Habib in T.Raychaudhuri ed *Contributions to Indian Economic History*, Calcutta, 1960, I, pp. 15-17.

person cannot convey the sums of money to a near or distant place, the *Sarraf* take it from him and give him a piece of paper written in *Hindvi* characters without a seal or envelope addressed to their agents (*Gumashta-ha*) who have their shops in various towns and place throughout these lands, and this paper in the language of this country is known as '*hundi*' and the *gumashtas* of these honest dealers payout money in accordance with that document, without any argument or objection." He further informs us that the *hindvi* piece of paper was transferable.[70] Abu-l Fazl has also described this system for the transition of money. This institution was so efficient that even the Imperial revenue was transmitted through it.[71] Mendelslo makes special reference of the facility with which bills of exchange could be secured at Ahmadabad by merchants from the Banya *sharrafs*, who had their correspondents in all parts of Asia and also as far as Constantinople in Europe.[72] There were two types of insurance. One type of insurance only covered the risk of loss on the way, and in the other type the insurer not only took the custody of the goods but also arranged for their safe conveyance. Mundy mentions the professional carters 'adowyaes' who took so much money on hiring that they could pay the transit dues etc. on their own risk for the safe conveyance of the goods.[73]

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70 Sujan Rai, p. 25.

71 *AN*, III, p. 762.

72 Mendelslo, pp. 27-28.

73 Mundy, II, pp. 278, 291.

At least European merchants themselves also made arrangements for their protection. Often they would take guards on their own cost. William Hawkins, in 1608, going from Surat to Agra took 'Pattan' (Pathan) soldiers.[74] Pieter van den Broeke took a strong party of guards with him while carrying cash from Surat to Broach due to unsafe roads.[75] Mundy hired horsemen and footmen at various places according to the suspected dangers during his journey from Agra to Ahmadabad.[76] In fact it was general practice of the English Factors to hire certain number of persons for safety on the routes.[77] Mendelslo, during his journey from Surat to Ahmadabad, met an English Caravan consisting of 12 English armed soldiers and as many Indians for conducting the caravan in safety from the Rajput highwaymen who frequented the country and lived as robbers.[78] During his journey from Ahmadabad to Cambay he engaged eight foot soldiers for the journey, which served as lackeys also and were hired for the small sums of eight crowns or sixteen rupees for the journey.[79] In his return journey, the caravan was attacked near Broach by a large band of Rajput highwaymen. A sharp conflict took place between the soldiers and the robbers and the robbers were ultimately forced to withdraw.[80] Hamilton

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74 Hawkins in *Early Travels*, p. 78.

75 Van den Broeke, JIH, XV Pt. II, p. 209.

76 Mundy, II, pp. 255-56, 296 etc.

77 *EFI, 1618-21*, pp. 74, 256; *1622-23*, p. 90.

78 Mendelslo, pp. 13-14.

79 Ibid., p. 41.

80 Ibid., p. 50-51.

records, that with the help of 'thirteen best firemen' he forced the Baluchi and the Mackran robbers to retreat, during his journey from Larribandar to Thatta.[81]

Another arrangement for security on the routes was to undertake journey in a *Caphila* (*qafila*) or caravan. Withington records on the way from Surat to Cambay at a place Barengeo (Bareja) the *Caphila* of Cambay used to meet and moved together for fear of the 'theeves'.[82] Della Valle travelled from Cambay to Ahmadabad with a *qafila* which consisted of above a hundred coaches besides footmen and horsemen and great laden wagons.[83] In 1619, a caravan of the English on Agra-Burhanpur route consisted of 1600 camels.[84] Mundy met a *qafila* of 800 camels near Sironj.[85]The Banjara caravan had upto 20000 pack oxen in general days, however when they travelled with the army there number might be hundred thousand and more.[86] On the Multan-Qandahar route, one had to wait for six months for travelling with a caravan for the safety on the route.[87]

81 Hamilton, I, pp.114-118.

82 Withington in *Early Travels*, p. 206.

83 Della Valle, I, p. 93.

84 *EFI, 1618-21*, p. 90.

85 Mundy ,II, pp. 95-95.

86 Thomas Roe, *The Embassy*, p. 67; Mundy, II, pp. 95-96; Tavernier, I, pp, 32-33; *Tuzuk*, p. 345; W. Crooke, *Tribes and Castes of the North-western Provinces and Oudh*, p. 151.

87 Manrique, II, pp. 251-2.

However, even travelling with caravan was not a guarantee of safety on the route. Sometimes a whole caravan was cut off.[88]

A very common method that travellers adopted for their safety was to give small amount of money to the highwaymen, tribes etc., as custom etc. Withington mentions, that the inhabitants between Jun and Thatta used to take money in the name of custom but they took responsibility of safe journey in their territories.[89] Thevenot refers to a Gracia Raja in Gujarat who, in lieu of some amount, extended free hospitality to the caravan. They offered provisions and victuals to the caravan and furnished the caravan with several horsemen for their security until they be out of his jurisdiction.[90]

One may thus assume that the picture of abject insecurity painted by some European merchants is to some extent an overstatement, their complaints seem rather over stated particularly in the face of recorded experience of other European merchants and travellers such as Manrique, Tavernier and Banarsidas and others, which suggested that journeys on the routes were not as hazarduous and risky as the account of the European merchants make them out. The routes passing entirely through the imperial land were safer in comparison to the routes passing through the region of the tributary chiefs and neighbouring kingdoms. Tavernier found that the route from Agra to Surat by way of Sironj and Burhanpur was safer than the

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88 Steel and Crowther, p. 272; Manrique, II, p. 252.

89 Withington in *Early Travels*, p. 210.

90 Thevenot, pp. 20-21.

route passing through thee territories of the Chieftains.[91] An English document of 1616 described the 'customs and extortions' on the routes through the region of Rajput Chieftains as 'intolerable' and the alternative route Surat - Burhanpur - Agra which passed almost entire y through imperial lands was 'safer, speedier and cheaper'.[92] The Agra - Patna route was 'nott very dangerous for robbers'.[93] The experience of Thevenot in the kingdom of Golconda where he had to pay within space of 23 leagues, money to sixteen local officers or their agents 'not being exacted in the Name of the King, but in the Name of private Lords', shows that the Mughal routes were safer than those of under other nearby kingdoms.[94]

Chandrabhan Brahman offers a different view in 1656 in that "Owing to the justice and management of this great Government, such peace is maintained on the routes and halting places that merchants and traders and travellers journey forth to (distant) parts in tranquillity of heart and joy. If at any place anything lost, the officers who have jurisdiction (*amal-daran*, MS. var. '*ummal*, revenue officials) there are obliged to pay compensation as well as a fine for the negligence."[95]

The best indicator of the safety on the land routes in Mughal India is the rate of insurance.

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91 Tavernier, p. 31.

92 Foster, *A Suppl. Cal.* p.89.

93 *EFI,1618-21*, p. 269.

94 Thevenot, p.131.

95 *Chahar Chaman-i Barhaman*, Add 18863, A: f.25a-b; Or. 1892, B: 16b. Cf. Irfan Habib, *Agrarian System*, p. 75.

Table- 5.1: Rate of Insurance on the Different Routes in Mughal India

Year	Goods insured	Route	Approximate distance	Insurance charges (%)
1646	Treasure	Daman-Surat	60	1.0
1647	Commercial goods	Ahmadabad-Thatta	315	0.5
1655	Cochineal	Surat-Agra	550	2.5
1655	Cash	Masulipatam-Surat	675	1.0

(source: I.Habib, 'Banking in Mughal India' in *Contributions to Indian Economic History*, edited by T. Raychaudhuri Calcutta, 1960, I, p.16.).

It is clear from the Table 5.1 that in 1646, a treasure brought from Manila, was insured at the rate1% for conveyance from Daman to Surat. The rate is indeed higher than the usual since a condition of uncertainty was created on the route due to death of a high official just before.[96] In 1647, goods against which, *hundi* was drawn, was insured at ½ % for Ahmedabad to Thatta.[97] In 1655, cash sent from Masulipattam to Surat was insured at 1%.[98] Cochineal sent from Surat to Agra in 1655 was insured at 2½ % only.[99]

Again by comparing rates of insurance during Mughal period with other regimes one can clearly understand the level of safety in the Mughal period. For this purpose I have selected some of the quotations of rates of insurance in 1820 under the East India Company's regime.[100] The distance between the points here given is not road distance, but 'approximate aerial'.

96 *EFI, 1646-50*, p. 88.

97 Ibid., p. 103.

98 *EFI ,1655-60*, p. 42.

99 Ibid. p. 15.

100 John Malcome, *A Memoir of Central India Including Malwa and Adjoining Provinces*, Vol. II, London, 1833, pp. 366-8; Shireen Moosvi, 'The Indian Economic Experience, 1600-1900: A Quantative Study', *People, Taxation, and Trade in Mughal India*, pp. 17-8.

And average distance between Hyderabad and Malwa, has been calculated taking Ujjain as an important centre.

Table-5.2: Rate of Insurance on the Different Routes in the East India Company's Regime (1820)

From	To	Goods insured	Aprox. Distance (miles)	Insurance charge (%) in 1820
Indore	Ahmadabad, Baroda, Broach	Opium and cloth	202	1.00 to 1.50
Surat	Indore	Pearls and precious stones	224	2.00 to 2.50
Hyderabad	Malwa	Silver and gold coin and bullion	445	1·50 to 3·00
Berhanpore	Indore	Cloths	101	0.75
Indore	Bhopal	Kuranah	107	1.50 to 2.00

Table-5.2 clearly shows that in 1820, merchants had to insure their merchandise by paying more even for less distance than they paid in the Mughal period. As the rate of insurance is the best indicator of level of safety on the routes, one clearly understand that level of safety on the routes during the Mughal period was much better than that of in the regime of the East India Company, surprisingly whose Factors showed the abject picture of insecurity on the routes in the Mughal period.

Considering the times charges for insurance in Mughal India, are more moderate than one would have expected and do not suggest any stifling of commerce through 'political instability'.[101]Thus the security on

[101] Irfan Habib in *PIHC*, 33rd Session, 1972, Muzaffapur, pp.290-303; Irfan Habib in T.Raychaudhuri ed. *Contributions to Indian Economic History*, Calcutta, 1960, I, pp. 15-17. See also Irfan Habib, 'Potentialities of Capitalistic Development in the Economy of Mughal India' published in *Enquiry*, New Series, Vol. III, No. 3; and in *Journal of Economic History*, Vol. XXIX, 1969; reprinted in Irfan Habib, *Essays in Indian History: Towards a Marxist Perception*, New Delhi, 1995, pp. 180-232, especially pp. 223-24.

the land routes was not as bad as is considered by some historians, such as W. H. Moreland. For this was, after all a pre-modern period, when transport and communication had not reached the speed and efficiency of modern times.

2: Condition of Security on the Seas and the Coast

As far as security on the coast and the ocean is concerned, the major problem was indeed piracy.

Before the coming of English and Dutch East India companies, Portugal was the only European country, trading with India on a large scale and it had established herself as a 'Lord of the Indian Ocean' on great extent and tried every possible option to continue this lordship. In persuasion of this motto, it opposed the entry of other European trading companies especially English and the Dutch. And this opposition led to the bitter instability in the Indian Ocean. The English and the Dutch too wanted a share in the India oceanic and coastal trade and to show their supremacy and mastery on the sea they started plundering the Indian ships. And this situation further contributed to the worsening of plight of the Indian merchants' trade. In the 1610 A.D., Jahangir perhaps under the influence of Portuguese, denied the trade privilege to the English East India Company and Mukarrab Khan, Governor of Cambay ordered them to leave the place, in retaliation of which the servants of the English Company plundered a number of Indian ships in the Red Sea in 1612. Sir Henry Medleton, the General of the Sixth Voyage, Nichlas Downton, and Captain Saris of the

Eighth Voyage, plundered at least eleven ships belonging to Surat, Diu, Malabar, Dabhol, Cananor etc.[102] to avenge any grievance they had against the authorities the European Companies seized or plunder the Indian ships in the water. Besides these plundering or seizing of Indian ships by the Companies' ships in revenge, there appeared certain groups of persons on the ocean and coast, whose sole motto was plunder, such as pirates under Captain Quail, Captain Cobb, Ayers, Every etc.[103]

Indian merchants not only had to face acts of piracies from the Europeans but they had to face indigenous pirates also as Indian coast was infested with those pirates. These indigenous pirates were broadly called Malabars, Sanganians, Warrels, etc. on the Western coast and Maghs or Arakanese on the Eastern coast mainly in the Bay of Bengal.

The pirates of Malabar were the most notorious and recorded by the Europeans in India. The coast from Goa southward, to the Cape de Comorin, was called the Southern Coast, but commonly called the Coast of Malabar.[104] Before the coming of the Europeans in India, the Malabars used to trade mostly with Red sea ports, but even then they were known for their acts of piracy. After the coming of Portuguese, due to trade rivalry, the Portuguese, asserted their power and compelled the Malabars to trade on

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102 For a detailed story of the fate of those ships, see Jagdish Narain Sarkar, '*The Rape of Indian Ships in the Indian waters, 1612*', *PIHC*, 1949, pp. 182-190.

103 For detail of depredations by this type of pirates see J. Biddulph, *The Pirates of Malabar and an Englishwoman in India Two Hundred Years Ago*, London, 1907, especially pp.1-68.

104 Linschoten, I, pp.63-64; A. Hamilton, I, p.145. Careri, p. 185.

their own conditions and forced them to buy passes from them. Shaykh Zainuddin Makhdum, writing in late sixteenth century, has pointed out that, due to compulsion the Malabars took to plundering the Portuguese and other ships, even of Muslims, to compensate their loss in income.[105] The reason given by Shaykh Zainuddin Makhdum, for adoption of piracy might be the reason behind rise of piracy by the Malabars, but certainly not behind adoption of the piracy, as they were notorious for this act even before the coming of the Portuguese. The Venetian traveller Marco Polo, who travelled in the thirteenth century (1239), has noted the act of piracy by Malabars in detail. He observed that (the Malabar) "who yearly scour these seas with more than an hundred small vessels, seizing and plundering all the merchants ships that pass that way. They take with them to sea their wives and children of all ages, who continue to accompany them during the whole of the summer's cruise. In order that no ships may escape them, they anchor their vessels at the distance of five miles from each other; twenty ships occupy a space of a hundred miles. Upon a trader's appearing in sight of one of them, a signal is made by fire or by smoke, when they all draw closer together, and capture the vessel as she attempts to pass. No injury is done to the crew, but as soon as they have made prize of the ship, they turn them on shore, recommending them to provide themselves with another cargo,

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[105] Shaykh Zainuddin Makhdum, *Tuhfat al-Mujahidin, A Historical Epic of the Sixteenth Century,* transl. from Arabic with annotations by S. Muhammad Husayn Nainar, Calicut, 2006, pp. 83-84.

which in case of their passing that way again may be the means of enriching their captors a second time."[106]

In the Mughal period most of the travellers and merchants have noted their presence and act of piracy. Linschoten speaks of Chale, Calicut, Cunhale, and Panana as their headquarters.[107] Fitch, blamed the Samorin for the patronage of the Malabar pirates, and noted that "When the Portugals complaine to the king, he sayth he doth not send them out; but he consenteth that they go. They range all the coast from Ceylon to Goa, and go by foure or five parowes or boats together; and have in every one of them fifty or threescore men, and boord presently. They do much harme on that coast, and take every yere many foists and boats of the Portugals. Many of these people be Moores. This kings countrey beginneth twelve leagues from Cochin, and reacheth neere unto Goa."[108] In 1608-09, Withington, noted the act of piracy done by the Malabar "beeing at this time masters of these seas" who were "good souldiers and carry in each frigat one hundred souldiers, and in their galiots two hundred", on the ships from Ormuz, Cochin and Diu. Out of 25 frigates of a fleet from Cochin, 16 were burnt and the rest escaped "if miserable spoile be an escape."[109] In 1623, Petro Della Valle, found it dangerous to travel by sea from Cambay to Goa "by

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106 Marco Polo, *The Travels of Marco Polo*, ed. Manual Komroff, New York, 1926, 1930. p.305. See also, *The Book of Ser Marco Polo*, edited by Henry Yule, and revised by Henry Cordier, vol. II, p. 389.

107 Linschoten, I, p. 73.

108 Fitch in *Early Travels*, p. 45.

109 Withington in *Early Travels*, p. 129.

reason of the continual incursions of the Malabar pirates."[110] European vessels were always in danger of these Malabar pirates.

Another community of pirates were Sanganians, or 'sakna' as called by Khafi Khan.[111] According to Hamilton, "the Sanganias lived at the port of Baet, very commodious and secure. They admit no Trade but practise Piracy. They give Protection to all Criminals, who deserve Punishment from the Hand of Justice ... I have several Skirmishes with them. They, being confident of their Numbers, strive to board all Ships they can come at by failing. Before they engage in a Fight, they drink Bang, which is made of a Seed like Hemp-seed, that has an intoxicating Quality, and whilst it affects the Head, they are furious. They wear long Hair, and when they let that hang loose, they'll give no Quarter." They had ships as big as 500 tons and used to attack in groups. "They are very cruel to those they can master, if they make Resistance; but to those that yield without fighting, they are pretty civil."[112] However, Khafi Khan in 1695 observed that the Bwaril or Sakanas, lawless sect belonging to Sorath (in Kathiawar) plundered small crafts trading from Bandar Abbas and Mascat, but were afraid of the large pilgrim ships.[113]

Warrels were other community of pirates who were also notorious. Hamilton notes about the Warrels that, "All the Country between *Diu* and

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110 Della Valle, I, p. 21.

111 Khafi Khan, I, p. 428.

112 A. Hamilton, I, pp. 130-134, 198.

113 Khafi Khan, I, 428.

Dand Point, Which is about 30 Leagues along Shore, admits no Traffick, being inhabited by Freebooters, called *Warrels*, and often associate with the *Sanganians*, in exercising Piracies and Depredations. They confide much in their Numbers, as the others do, and strive to board their Prizes, and as soon as get on board, they throw in Showers of stones on the Prizes Decks, in order to sink them that Way, if they don't yield, and they have earthen Pots as big as a six Pound Granadoe Shell, full of unquenched Lime, well fitted, which they throw in also, and the Pots breaking, there arises so great a Dust, that the Defendants can neither breathe nor fee well. They also use Wicks of Cotton, dipt in a combustible Oyl, and firing the Wick, and throwing it into their Opposer's Ship, it burns violently, and sets Fire to the Parts that it is thrown on. They have no Cities, and their Villages are small. The best of them stands about 60 Miles to the Eastward of *Diu*, and called *Chance*. It is built within the Mouth of a River, which has a small Island lying athwart it, about two miles into the Sea....The *Warrels* occupy all the Sea-coast as high as *Goga,* which lies about 12 Leagues within the Gulf of *Cambay*."[114] As pointed out by Hamilton these Warrels were often associated with sanganians in piracy, and perhaps this was the reason behind common identity of sanganians and warrels as *sakna* or *bwaril* by Khafi Khan.[115] Perhaps these were Vaddellas for which in 1668, in Surat, instruction were given on 29th August, to Captain Barker to protect 'the King's junnks'

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114 Hamilton, I, pp. 140-41.

115 Khafi Khan , p. 428.

expected from the Red Sea, from the 'vaddellas' and 'sangannas'.[116] Earlier we have references of Vaddels in 1656, when they plundered the Hollanders in Thatta.[117]

On the eastern coast pirates mostly Portuguese, under the protection of King of Arakan, were notorious for their plunder in Mughal India. However they did their depredations mostly in the coastal area by capturing people for selling as slaves, but were not averse to plunder the vessels on the coast. Bernier and Manucci have noted about the cruel practice of these pirates at length.[118]One of the reasons behind purchasing or building vessels of 80 or 120 tons by English Factors and the Dutch in the Bay of Bengal was depredations by these Arakanese pirates.[119]

From the Red Sea episode of piracy of 1612, two type of plunder came into sight. The first one was direct plunder and the other was indirect, in the direct plunder, the plunderer, used to plunder all the things, as is the perception of plunder, but in the indirect plunder, there was hidden plunder and the traders were compelled to sell their merchandise on the price fixed or were compelled to exchange their merchandise as their oppressor

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116 *EFI*, 1668-69, p. 11; In 1668, in Surat, the governor, the *shahbander* and the rest of the officers of this town, requested the English to send Bantam to bring in 'the King's junks' expected from the Red Sea, and to protect them against, some pirates, said to be laying in wait for them.

117 *EFI*, 1655-60, pp. 78; 80-81.

118 Bernier, pp. 74-78; Manucci, I, p. 371.

119 *EFI, 1634-36*, pp. 41-43.

wished.[120] From the European as well as Indian accounts, it is clear that, these pirates inflicted much damage not only monetarily but physically and morally also, especially to the women of the ships. In 1576, Akbar, resisted the going of his family member on pilgrim *hajj* to Mokha, only due to the fear of plunder and molestation of the ladies. However, he ultimately allowed them to go to Mokha after receiving a pass from the Portuguese.[121] In 1695, Every, looted the imperial ship *Ganj-i-sawai*. During plunder the pirates striped the men and dishonoured the women. Due to which several women ended their life by jumping into the sea or by killing themselves by knife or daggers.[122] And if we have to believe Hamilton, a princess was also carried by Every during this plunder.[123]

Means and Cost of Security on the Seas:

The piracy was a continual menace on the ocean, but there were several methods, adopted by merchants and ship-owners to save themselves and their trade to a great extent.

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120 *Purchas*, III, pp. 400-3; Jourdain, pp. 212, 217. See also A.J. Qaisar. *Merchant Shipping in India during the Seventeenth Century*, in *Medieval India – A Mescelleny*, Vol. 2, 1972, p. 216.

121 Blochet Sup. Pers. 482, f. 30b-31a, quoted by Shireen Moosvi, in *People*, *Taxation*, *and Trade in Mughal India*, New Delhi, 2008, p. 245, and full translation of this *farman* is also available in the same book at p.253 as appendix B.

122 Khafi Khan, I, pp. 421-22.

123 A. Hamilton, I, p. 146.

Cartazes:

The Portuguese started completely a new practice in the India Ocean, by selling cartazes (from Persian *Qartas* meaning paper) or passes for safe passage to the ships, without which they claimed their right to seize and plunder the vessel. The official Portuguese chronicle justified such a policy in these words "It is true that there does exist a common right to all to navigate the sea and in Europe we recognise the rights which others hold against us; but this right does not extend beyond Europe and therefore the Portuguese as Lords of the Sea are justified in confiscating the goods of those who navigate the seas without their permission."[124] An Arabic chronicler of 16th century noted that, the Portuguese started to issue passes to the people of Kochi and Kannur, for the safe voyage, just after settling in those ports, and impressed upon the people that the system of pass introduced by them was to their own advantage and thus induced them to submit to it.[125] According to the chronicler Gaspar Correia, cartazes were first issued in 1502 to ships from the Malabar ports of Kollam, Cochin and Cannanore, in order to certify to the fact that they pertained to the areas that were not at war with the Portuguese.[126] Initially, only Portuguese used to

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124 Quoted in K.M. Panikkar, *India and the Indian Ocean*, London, 1962, p. 40. See also M.N.Pearson, 'Cafilas and Cartazes', *PIHC*, 30th session, Bhagalpur, 1968, p. 201-2.

125 Nainar, p. 52.

126 Gaspar Correia , *Lendas da India*, ed. M. Lopes de Almeida, Porto, 1975, I, p.298. Cf. Sanjay Subrahmanyam in *The Portuguese Empire in Asia 1500-1700, A Political and Economic History*, London, 1993, p. 77; see also K. S. Mathew,

give passes to the ships they pleased, but latter on after the entry of other European Companies especially English and the Dutch, they too started issuing passes, keeping in mind two important things. Firstly, only for those ports, from which their own trade would not suffer and secondly to make good relations with the authorities to get certain favours. In most of the passes issued to the merchants not only destination of the ships were stated, but kinds of merchandise, types of arms, type of persons it could accompany, and ports at which it could stay on the route etc. were also mentioned and these had to be followed strictly. In 1613, a pass was issued to the King of Bijapur for a voyage from Dabhol to Jiddah, it laid down in detail what weapon could be carried, and forbade the ship to transport Turks, Abyssinians, cinnamon, pepper, ginger, iron, steel, copper, lead, tin, brass, timber, tabado(?), coir, saltpetre, sulphur, or bamboo, or anything else forbidden. Nor could this ship transport any Portuguese, or horses unless they were licenced, or slaves, unless they were native of Bijapur and not Christians. The ship was to be searched by the Royal Factor at Dabhol before it left.[127] A Dutch letter contains an extract from a passport issued by Viceroy of Goa in favour of the *Mutasaddi* of Surat for a ship going to Mocha, that, "the vessel would not carry to Mocha lead, tin, cloves, cinnamon, pepper, nuts and iron planks. It would not carry back from

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'Akbar and Portuguese Maritime Dominance' in Irfan Habib (ed.) *Akbar and His India*, 1st pub. New Delhi, 1997, eighth imp. 2008, p. 257.

127 J.F. Biker, *Colleccao de Tratados*, Lisbon, 1921, IV, 181-2, Cf. M.N.Pearson, 'Cafilas and Cartazes', *PIHC*. (30th session), p. 202.

Mocha any blacks, Turks or Christians. The vessel would not drop anchor at places other than those mentioned."[128] Passes were generally valid for a trip or a year, for that period the issuing authority used to send instructions to all their commanders, merchants etc. not only to forbear all manner of seizure or disturbance to the bearer of their pass, with their men, vessel, merchandise or whatsoever therein, but to correspond courteously during their sailing.[129] However, voyaging with a pass from any Company was not the guarantee of safety on the sea. From a *farman* of Akbar to Qulich Khan, who was first governor of Surat, isued in 1576, it appears that there was always some mistrust on the side of the merchants. The *farman* quotes information given by Qulich Khan, that "although the Portuguese (*Farangian*) have not within this period violated their promise (*be-qauli na kardand*) and not obstructed any ships passage, yet during this period no one has put his trust in the pass (*qaul*) of the Portuguese, to sail to Mecca."[130] Generally the rival companies used to molest the ships travelling with passes issued by their rivals. At times commanders of the issuing company were not averse to molest the ships, on account of various allegations, such as carrying people, money, goods, jewels, letters, etc. forbidden by the pass or accusing them being in league with their enemies

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128 *Ducth Factories in India, 1617-1623*, trans. And ed. By Om Prakash,....p. 90, see p. 133 also.

129 *EFI*, 1630-33, p. 284.

130 Blochet Sup. Pers. 482, f.30b-31a. Cf. Shireen Moosvi, in *People, Taxation, and Trade in Mughal India*, New Delhi, 2008, p. 245, and full translation of this *farman* is also available in the same book at p.253 as appendix B.

in any form. The Dutch issued time and again instructions to their factors to seize all those ships, which were in league with their enemies in any form, despite having passes from them.[131] And this compelled the Indian merchants to make a 'custom' to buy passes from more than one European Company for their voyage.[132] The best way to ensure safety on the sea was to accompany the ships of the issuing authority of the pass with their permission.[133]

From the beginning of the system of pass in India, the Portuguese used to issue passes to the master of the ship against a fixed fee.[134] Later in our period, the Portuguese used to issue passes after the inspection of the ship's hold and then fixed the price of the pass. The procedure of issuing passes from the Indian point of view has been mentioned in detail by Bayazid Bayat, who went for *hajj* in 1580, on the ship *Muhammadi*. The price of the pass was taken on behalf of Diu by the "tax farmers of port Daman". As the Portuguese arrived to board the ship, they took a son of Bayazid as hostage: clearly neither trusted the other. The elder son of Bayazid, Sadat Yar, who, as Bayazid informs us, had learnt both Indian as well Portuguese languages, negotiated with the inspectors. The Portuguese demanded 10,000 *mahmudis* in cash, to be paid by the passengers. Since the passengers had only goods, Bayazid paid the sum on their behalf, they

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131 *EFI*, 1630-33, p. 244n; *DFI*, 1617-23, 192, 218, 220, 221.

132 Ibid., I, p. 274; *EFI*, 1630-33, p. 215; Abbe Carre, III, p. 786.

133 Foster, *A Suppl. Cal.*, p. 144, Abbe Carre, p.130.

134 *Nainar*, p. 52.

promising to reimburse him at Jedda, after they had sold their goods. The agreement was registered with the 'captian of the Surat ships', Hasan Channu, and the '*Caudhuri* of the port', Tajpal, left the ship. Bayazid's own son returned from the 'Portuguese galliot' (*ghurab-i Farang*) in the evening.[135] In 1612, for the *Rahimi* (Queene Mother's ship)[136] the Portuguese demanded "an hundred thousand Mahmudies for her cartaze or Pass, and after twentie thousand, at last taking one thousand Rialls and odde money, with divers presents, which the Mogolls were faine to give them."[137] A letter written by Pieter van den Broecke, to the Directors at Amsterdam in 1620, informs that, cost of Portuguese pass to the merchants of Surat, was between 3000 and 8000 *mahmudis* per ship.[138] And in 1617, the pass of a ship belonging to Prince Khurram, then *Subadar* of Gujarat, which was destined for Mokha costed 8,000 *mahmudis*.[139]

Redressals:

One of the important results of having pass was that, if a ship was molested on the sea by the company which issued the pass or pirates of the

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135 Bayazid Bayat, *Tazkira-i Humayun wa Akbar*, edited by M. Hidaya Hosain, Bib.Ind.,Calcutta, 1941, pp. 354-5. Cf. Shireen Moosvi, *People, Taxation, and Trade in Mughal India*, New Delhi, 2008, p. 247.

136 John Saris's Journal in Samual Purchas, *Purchas His Pilgrimes*, edited by Maclehose, Vol. III, Glasgow, 1905, p. 399.

137 *Purchas*, IV, p. 23.

138 *DFI, 1617-1623*, doc. No. 107, p. 133.

139 Ibid. See also Ruby Maloni, 'Europeans in Seventeenth Century in Gujarat: Presence and Response', *Social Scientist*, Vol. 36, No. 3/4 (Mar-Apr.2008) pp. 64-99, especially 83.

issuing nation, it was the liability of the issuing authority to compensate the victims. However it was not easy to get compensation without great exertions by the victims. Generally, the alleged company used to deny the claim and put forward various excuses, such as wrong identification on part of victims, blaming the act of plundering on their rival companies, doubting the genuineness of the pass, alleging the victims being in league with their enemies or carrying goods or people prohibited by the pass etc. The victims on their part used to complain to *Shahbandar* of the port or to the governor of the *Suba*, who ultimately tried to get compensation from the alleged company, by using various means such as arranging meeting with the factors, or confiscating some merchandise or arresting the factors or putting embargo on their trade. And it was easy for the Mughal authority to put pressure on the companies especially English and the Dutch who had established their factories in the interior of the empire, however earlier these options were not available in case of Portuguese culprits, who had restricted themselves only on the coastal regions.[140] In the words of Methwold (after repetition of act of piracy by Captain Cobb in 1636 in the

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140 Ashin Das Gupta has repeatedly stressed on this factor again and again and has used a term 'balance of blackmail' for this situation ('The Maritime Merchant and Indian History', first published in *South Asia*, New Series, Vol. 7, No. 1, 1984, reprinted in *The World of the Indian Ocean Merchant: 1500-1800, Collected Essays of Ashin Das Gupta*, Compiled by Uma Das Gupta, with an Introduction by Sanjay Subrahmanyam, New Delhi, 2001, paperback, 2004, p. 30; 'The Indian Merchants and the Western Indian Ocean: The Early Seventeenth Century', first published in *Modern Asian Studies*, 19, 1985, reprinted in *The World of the Indian Ocean Merchant: 1500-1800*, pp. 290-91).

Red Sea), 'Do not know what will result from Cobb's latest act of piracy. The best wee can expect is the seizure of our persons and goods in all places, for the interested parties are departed, many of them, towards the court, where their clamour will prevaile to get the King's order, and then wee must expect no favour, since the very name of an Englishman is became a abomination in all places of this vast kingdome.'[141]

In 1622 the Dutch vessel Weesp, had plundered a ship from Chaul on which Asaf Khan had his merchandise. However Chaul was out of Mughal empire, but due to the influence of Asaf Khan, the Dutch were compelled to pay him to his satisfaction. After repeated demand, which the Dutch tried to deny, the factors were arrested at Agra but were released on their undertaking to pay the amount Rs.13, 000. The money was accordingly remitted by the Dutch factor at Surat.[142]

In 1632, the English factors had to pay compensation even to Malabars, their enemy, having pass from them, an amount of 100*l* (2000 *mahmudi*), due to plundering by Captain Quail.[143]

In 1635, servants of English East India Company in India had to face worst of harshness as well as humiliation, due to claim of compensation by the merchants of two ships, one *Taufiqi*, from port of Surat and another *Mahmudi* from port of Diu. The merchants complained to the governor of

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141 *EFI*, 1634-36, pp.315-316.

142 *DFI*, I, 191-3, 200, 210, 215, 218, 220, 224, 228, 243-45, 271; *EFI*, 1622-23, p. 197.

143 *EFI*, 1630-33, p. 180.

Surat, who accordingly called Methwold, the president of English East India Company in India, to listen complains as well to compensate the victims. Methwold "found a sadde assembly of dejected merchants, some lookeing thorough mee with eyes sparkling with indignation, others half dead in the sense of their losses;..." However as usual the president denied act of piracy by any of their ships, but after testimony of *nakhuda* of the *Taufiqi*, and production of large number of evidences found it was act of Ayers, and the English had to compensate the victims of the *Taufiqi* an amount of 110, 000 rupees after examining the claim by a team comprising of the *shahbandar* and Virji Vora and certain other merchants. This process of compensation took a lot of time and during this period president was kept in prison for eight weeks and had to face much humiliation.[144] Besides imprisonment of president, English Factors at various places were also either taken in prison or were kept under strict surveillance and goods were sequestrated.[145] However after assistance of some Mughal *mansabdars*, they got *parwana* for the release of their goods and house at various places.[146] However the English got relief in compensating the victims of Diu '*junk*' due to intervention of the Portuguese as that port belonged to them, though the Portuguese detained certain amount of English as surety

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144 Ibid., *1634-36*, pp. 190, 191, 195-97, for two accounts of piracy on the ships see pp.197-201, and for full detail of events and imprisonment of Methwold in his own words see pp. 232-242.

145 Ibid., pp. 194, 262, 272, 278, 294-95.

146 Ibid., pp. 272, 287, 291.

which was at Goa in hand of Vedor da Fazenda, till the judgement of case of Diu merchants, but at last got release of the amount.[147]

In 1650, the English captured Malabar ships having passes from them and trading with Mughal ports. The Malabars complained to the governor, who complained of the seizure to the president of the company and urged him to give compensation or otherwise he would report to the court. In reply the English disclaimed all responsibility for the fact that these vessels had their passes and suggested that it was the duty of the king of India to secure his own seas from the pirates, moreover they alleged that the Malabars had done the English many wrongs and the grant of passes to them was only made at the entreaty of governor.[148] The latter retorted that the president and council were responsible for all injuries done by the Englishmen, instancing the case of Cobb's piracies and intimating that if

147 Ibid., *1634-36*, pp.311, 316; 1637-41, pp.vii, x, xvii, 20, 116, 203; *1637-41*, pp. 20, 31. The English were so scared from the Portuguese due to the piracy by Cobb, that in 1638, when they needed gold to be changed in money, the company advised the president not to send the gold to Goa due to the fear of loss of whole sum. (Ibid., *1637-41*, p. 60.)

148 Ibid., *1642-45*, pp.2-3. In 1642, the English had captured three Malabar ships near Swally, bound to Surat. These Malabars complained to the governor for their compensation, but the governor became deaf to their claim due to his personal trading relation with the English. Before this event the English had undertook the responsibility to convoy the governor's ship to Basra. However the governor showed displeasure to the English on seizing so near this port, merchant vessels bound to this port. But the next governor sought safe conduct from the English for the Malabar vessels encountered them to the northward of Daman, but if to the southwards of that place or elsewhere they became obvious to the English, they might employ their most of power and courage to chastise and surprise them. Thus got passes for the Malabar ships trading with Mughal ports.

satisfaction were not made, similar treatment might be expected. Ultimately the English restored their vessels.[149]

European Companies' Ships as Escort:

In case of imperial families and high office bearers the European companies used to provide an escort for their ships' safety. This was done to appease them and to win some concession for their companies. In 1628 Pieter van den Broecke records that, on the request of the governor of Surat he sent Mauritius to the mouth of the river to protect some Muslim ships against the Portuguese and the Malabars.[150] In March 1629, *Shahi* the imperial ship was returning from the Red Sea ports, the Mughals asked the Dutch and the English to seek her and to protect her against the Portuguese, and escort her to Surat.[151]However, the *Shahi* could not reach Surat Bar, till November 1632.[152] In 1643 President Fremlen, at Swally Marine, complained to the Company that, '...we are upon sundry occasions enforced in a manner to convoy the Kings and other eminent merchants shipping free of the Mallavars danger...' and he further says that, '... as there was no other Christian vessel left to convoy her (the King's ship) free of the Mallavars danger, the Governor and other officials prevailed upon the

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149 Ibid., *1651-55*, p. 39. In 1636, English President at Surat was put behind bar due to piracy by Cobb and Ayers, for denying compensation for at least 8 weeks and was compelled to compensate.(*EFI*, *1634-36*, pp. 232-242).

150 Van den Broeke, JIH, XI Part II, p. 213.

151 *EFI, 1630-33*, pp. 49.

152 Ibid., 245. For more detailed information about the ship '*Shahi*', see Shireen Moosvi, *People, Taxation, and Trade*, pp. 260-62.

President to order the *Discovery* to attend on the junk. Accordingly they departed together on March 12, and kept company until they were out of sight of land.'[153] In 1668, in Surat, the governor and the *shahbander* requested the English to send Bantam to bring in 'the King's junks' expected from the Red Sea, and to protect them against, the pirates, said to be laying in wait for them.[154] In the last decade of seventeenth century, when the incidents of piracy was on the rise, the governor of Surat made agreements with the major Europeans trading companies viz. English, Dutch and French in India, to escort the Indian ships to their respective destination. However due to dispute over demands of the Indian merchants for compensations on certain plundered ships, the agreement was set aside on March 19, 1704.[155]

Defence Fleet:

One of the important measures adopted by the companies to protect their vessels from the piracy was to form fleets of defence during the voyage. Earlier the Portuguese made fleet of defence to maintain their control on the sea and to create pressure upon the merchants who tried to evade their cartazes, but later on they organised the *cafilas* or convoys of

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153 Ibid., *1642-45*, pp. 90-92.

154 Ibid., *1668-69*, p. 11. The pirates were sanganians and warrels or Vaddellas.

155 Manucci, IV, pp. 463-467. For detail discussion on this agreement and its result see Ashin Das Gupta, *Indian Merchants and Decline of Surat: 1700-1750*, p.97.1st published in Wesbaden, Germany, 1979, reprint New Delhi, 1994, pp. 95-133.

merchants' ships to protect themselves from their rival Malabars.[156]The Portuguese came every year to Cambay with their *Kafila* consisting of a large number of fusts, a single-musted oared boat with about forty oarsmen and usually of about 40 tons, from Goa, Cochin. Chaul, Bassein, Daman and Diu, bringing large variety of goods from Europe, China, Malacca and other places and in return they take back various kinds of textiles for Portugal, Malacca, Ormuz, Mozambique, etc.[157] On 7 July 1619, the English and the Dutch reached on an agreement to form a combined fleet of defence, to protect themselves and to inflict the maximum possible damage on their common enemy, the Portuguese. It had been decided that the two companies would send four ships each to India. These ships would proceed together from the Cape and after inflicting all possible damage on the Portuguese at Mozambique, would go on to Surat. At Surat, they would try to capture the Portuguese carracks that leave Goa each year, or at least incapacitate them from proceeding further.[158] In 1621, eleven ships, seven of which were of the Dutch and four were of the English, were sent to the coast of Malabar and Goa. While the principal mission of the fleet was to inflict damage on the Portuguese and to prevent the departure of the carracks for Portugal, it was welcome to engage in trade in the region to the

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156 Van Twist, pp. 75. *EFI*, 1651-55, pp. 216-17; Nainar, p. 83; For defence fleet of Portuguese consisting of armadas, in the sixteenth century see M.N.Pearson, *Cafilas and Cartazes*, pp. 202.

157 Jourdain, *Journal of John Jourdain*, ed. W.Foster, cambridge, 1905, AES pub. New Delhi, 1992, p. 173; *DFI, 1617-1623*, doc. No. 107, p. 135.

158 *DFI, 1617-23*, doc. No. 108, pp. 141-42.

extent possible.[159] In later half of the seventeenth century, the English formed their fleet of defence to combat the Malabars, Siddis, Marathas, the Dutch and other pirates.[160]

Arms:

It is true that, the Indian ships mostly relied on passes for their safety, but they were not without arms on the sea. Abu'l Fazl in his *A'in*, has mentioned a *topandaz* (gunner) out of twelve traditional crew in a ship and its number could vary according to the size of the ship.[161] Ralph Croft in 1613 found that an Indian ship of 300 tons, which had come from Mokha to Surat, had twelve great pieces of artillery on each side.[162]In 1616, Terry, observed that, the pilgrim ships going from Surat to Mokha had 'good ordinance'.[163]De Laet says that the ships plying between Surat and Mokha, used to carry many large guns.[164]In 1646, twelve guns were removed from the ships Shukohi and Khizri, which were in disuse outside the fort (of Surat).[165] Fryer in 1680 noted that some ships carried 30 or 40 pieces of

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159 Ibid., doc. No. 136, pp. 172-174.

160 *EFI* (New Series), *1670-77*, I, pp. 73-74, 77, 84, 111-12, 123, 140, ff.

161 *A'in*, I, p.144.

162 Thomas Best, *Voyages*, ed. W. Foster, pp. 234.

163 *Early Travels*, p. 301.

164 De Laet.p.84; Van Twist, in 1638, relying totally upon De Laet's in formation copied the same sentence (*John van Twist's Description of India*, transl. by W. H. Moreland, JIH, Vol. XV, Part, 2, August 1936, p. 74).

165 Blochet Sup. Pers. 482, f. 93b, translated by Shireen Moosvi, in *People, Taxation, and Trade*, p. 272, as Doc. No. 13.

cannon.[166] *Ganj-i-Sawai*, the biggest ship of Aurangzeb, in 1695 during her return from Mokha to Surat, was reported to have eighty cannon and four hundred matchlocks besides other equipments of defence.[167]

However, it is clearly pointed out by the foreign travellers that despite their guns the Indian ships 'cannot well defend themselves'.[168] Van Twist, in 1638, observed regarding the ships plying between Surat and Mokha that, "though they carry many guns, they are not protected by them, for [the guns] are on the top orlop without defence, while they do not know how to handle them."[169]Besides these, there are several examples of the weakness of the Mughals in handling their armaments properly. In 1612, in the Red Sea, at least 11 Indian ships were plundered with ease by the English East India Company's servants.[170]In 1614 Nicholas Downton reports that, the Portuguese, burnt at Gogo, ten great ships in which, one was *Rahimi*, (belonging to Abdur Rahim Khan-i-Khanan) and one hundred and twenty small vessels with ease. In 1623, again the English captured two ships, *Shahi* and *Gunjawar*, belonging to Shahjahan, although, they were captured to compel Shahjahan to lift the embargo he had imposed on their Red Sea trade therefore, after a compromise between the Mughal officials

166 Fryer, I, pp. 267.

167 Khafi Khan, pp. 422.

168 *Purchas*, IX, pp. 23.

169 Van Twist, pp. 74.

170 For the detailed story of the fate of those ships, see Jagdish Narain Sarkar, '*The Rape of Indian Ships in the Indian waters, 1612*', *P.I. H. C.* 1949, pp. 182-190.

and the English, the ships were released and accounts were settled.[171] But the most alarming example is the capture of biggest ship of Surat, *Gunj-i-Sawai,* which belonged to the emperor Aurangzeb, in 1695, despite having eighty cannons and four hundred matchlocks besides other equipments of defence, almost without any resistance by a few pirates lead by an English, Henry Every.[172] In fact Mughal Indian vessels used to be so overcrowded that a corridor necessary for naval guns to draw and push out of the vessels side to fire, a mechanism used at that time, was not available and ammunition trolley could not supply them properly. This was one of the reasons behind defencelessness of the Mughal ship Ganj-i Sawai despite having large number of ammunitions.[173]

Insurance:

One of the methods which started to be used in Mughal India for security on the ocean or coast was insurance. This function of insurance was generally carried out by sarrafs.[174] This method was adopted both by

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171 *EFI, 1622-23*, p.340, and *EFI, 1634-6*, p. 252 see also *EFI*, 1618-21, pp. 113, 176-7.

172 Khafi Khan, pp. 421-22. See also '*Narrative of Philip Midleton, a Youth belonging to the ship "Charles" alias "Fancy" which delivered to Lord Justices, the 4th August 1696*', in S. C. Hill, *Episodes of Piracy in the Eastern Seas*, pub. in *Indian Antiquary*, 1919, pp. 225-26.

173 Ashin Das Gupta, *Indian Merchants and Decline of Surat: 1700-1750*, p.97.

174 *EFI, 1655-60*, pp. 62, 71; *1661-64*, p. 86; Cf. Irfan Habib, 'Banking in Mughal India', p. 15.

Europeans as well by Indians.[175] Not only goods were insured but sometimes whole vessel was also insured.[176]

Table 5.3: Rate of Marine insurance in Mughal India

Year	Cargo	Voyage	Charges in terms of percentage of value of goods incurred	References
1622	"Goods"	Cambay to Swally (Surat)	2 or 2 ½ per cent.	EFI, 1622-23, p.101.
1643	A ship	Mokha to Surat	3 per cent.	Ibid., 1642-45, p. 92
1644	'Goods'	Surat to Mokha	5 per cent.	Ibid., p.161, fn. 1
1649	Sugar	Surat to Gambroon (Persia)	2 ¾ per cent.	Ibid, 1646-50, p. 259
1665	Cash	Surat to Calicut	4 ½ per cent.	Ibid, 1`665-67, p. 100.

(Sources: Irfan Habib, 'Banking in Mughal India', p. 16 and A. J. Qaisar, 'Merchant Shipping in India During the Seventeenth Century', *Medieval India- A Miscellany*, Vol. 2, 1972, p. 209.)

System of Official Protection:

So far as role of the Mughal administration in securing the ocean and coast from the piracy is concerned, initially Mughal Indians were fully dependent on the Portuguese passes. And even after getting pass they were in fear of plunder.[177] Although even after the coming of the English and later on the Dutch, the Mughal Indians had to depend on the passes, but there occurred a great change. This change was due to accumulation of considerable assets by the English and the Dutch, unlike the Portuguese who were strictly coastal, into the interior of the empire, now the Mughal were in position to balance the strength of the European Companies on the

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175 Irfan Habib, 'Banking in Mughal India', p. 15-17.

176 *EFI, 1642-45*, pp. 92, 216; *1646-50*, p. 259; *1651-54*, pp. 177, 224; *1665-67*, p. 170.

177 Blochet Sup. Pers. 482, f. 30b-31a. Cf. Shireen Moosvi, in *People, Taxation, and Trade,* p. 245, and full translation of this *farman* is also available in the same book at p.253 as appendix B.

ocean by threat of seizure on the land. This 'balance of blackmail' made easy to get compensation from the Companies from which the plunderer or pirates belonged. And here in making pressure on the faulty Companies and making arrangements for safe conduct of vessels, the Mughal administration played their role very effectively.[178] However the Mughals also maintained naval power, but could not make it powerful in any sense. According to Abu'l Fazl, Akbar promoted the efficiency of this department and the first object in his mind was to fit out the strong boats, capable of carrying elephants and some of them in such a manner as to be of use in siege and for the conquest of strong forts.[179] Although Akbar took initiative to remove the Portuguese (*Firangis*) the 'stumbling block in the way of pilgrims to Hijaz', from the coastal area. In 1580, he appointed an army to capture the ports of the *Firangis*, under the leadership of Qutubuddin Khan. The rulers of the Deccan were also informed that the troops had been sent in that direction and they were bidden to regard this news as an opportunity for securing their loyalty and were directed to join the army with suitable equipments. However, from a letter of Akbar to Abdullah Khan Uzbeg, it appears that, this mission was not fulfilled as, even in 1586, Akbar had an idea to remove these trouble makers on the sea and laments that he could not accomplished it due to some other reason.[180] Shahjahan developed the Bengal *nawara* which consisted of 70,000 personnel, besides soldiers to

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178 See sections 'Redressals' and 'European Companies' Ships as Escort'.

179 *A'in*, I, pp.144-45.

180 *AN*, III, pp.145, 280-81, 500-01.

curb the Arakanese in the Bay of Bengal.[181] But it failed when confronted with Arakanese, even though they outnumbered them.[182] Bernier noted that "the pirates were become so bold and skilful that with four or five galleasses they would attack, and generally capture or destroy, fourteen or fifteen of the Mogol's galleys."[183] Aurangzeb, tried to develop the naval power with the help of the Europeans, but he failed in this mission.[184] And during his period he entrusted the defence of the coast to the Siddis of Janjira who were unable to defend the vessels from the pirates like Every or Kidd.[185] Thus Mughals could not develop naval power in true sense and always depended on 'balance of blackmail' for safety on the Ocean.

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181 Lahori, I, pp. 471.

182 *Fathiya -i Ibriya*, pp. 124-25.

183 Bernier, p. 179.

184 Manucci, II, pp. 41-42.

185 Khafi Khan, I, p. 514; Ashin Das Gupta, *Indian Merchants and the Decline of Surat: c. 1700-1750*, p. 97.

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